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American Cinematographer

APRIL 2000

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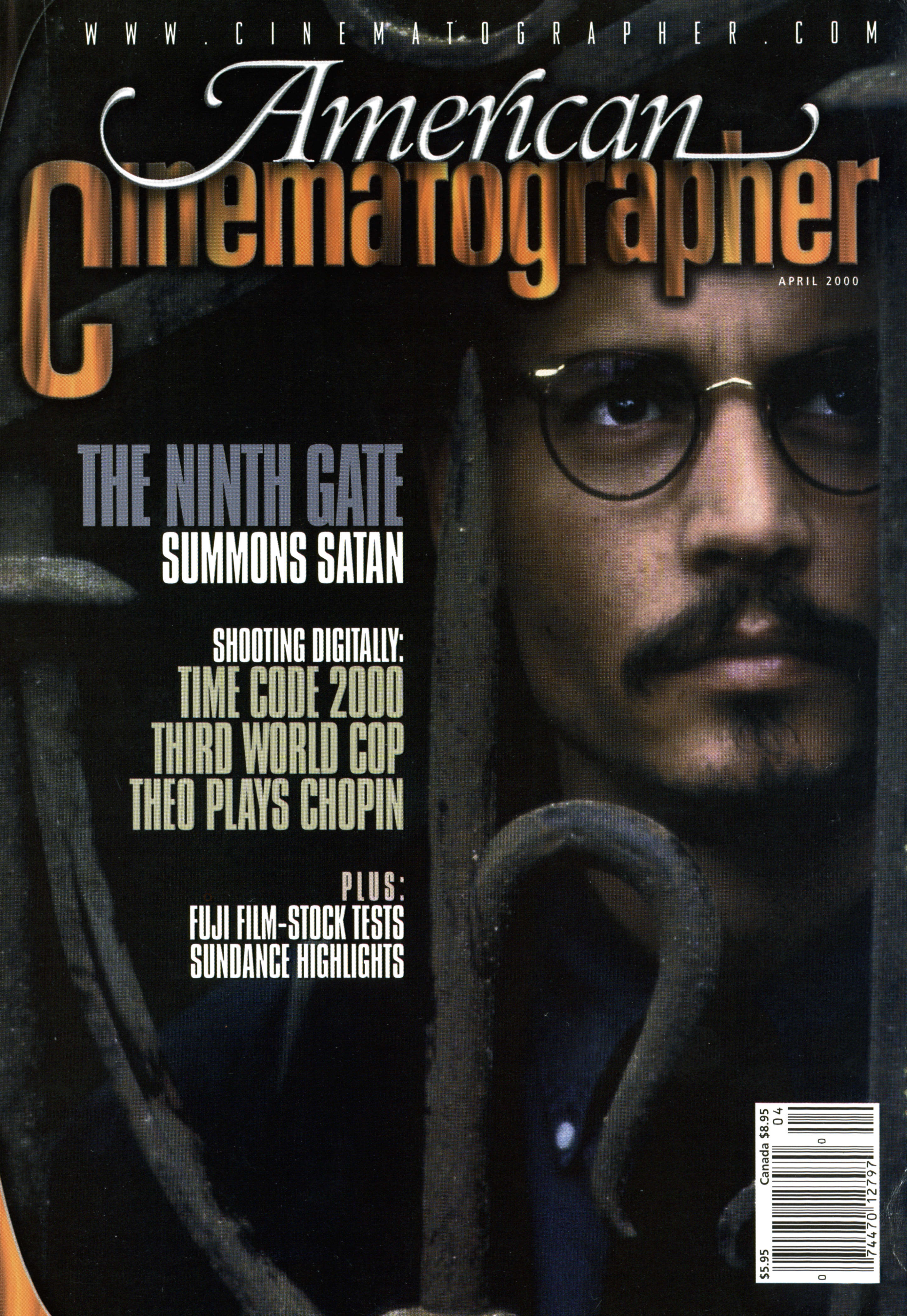

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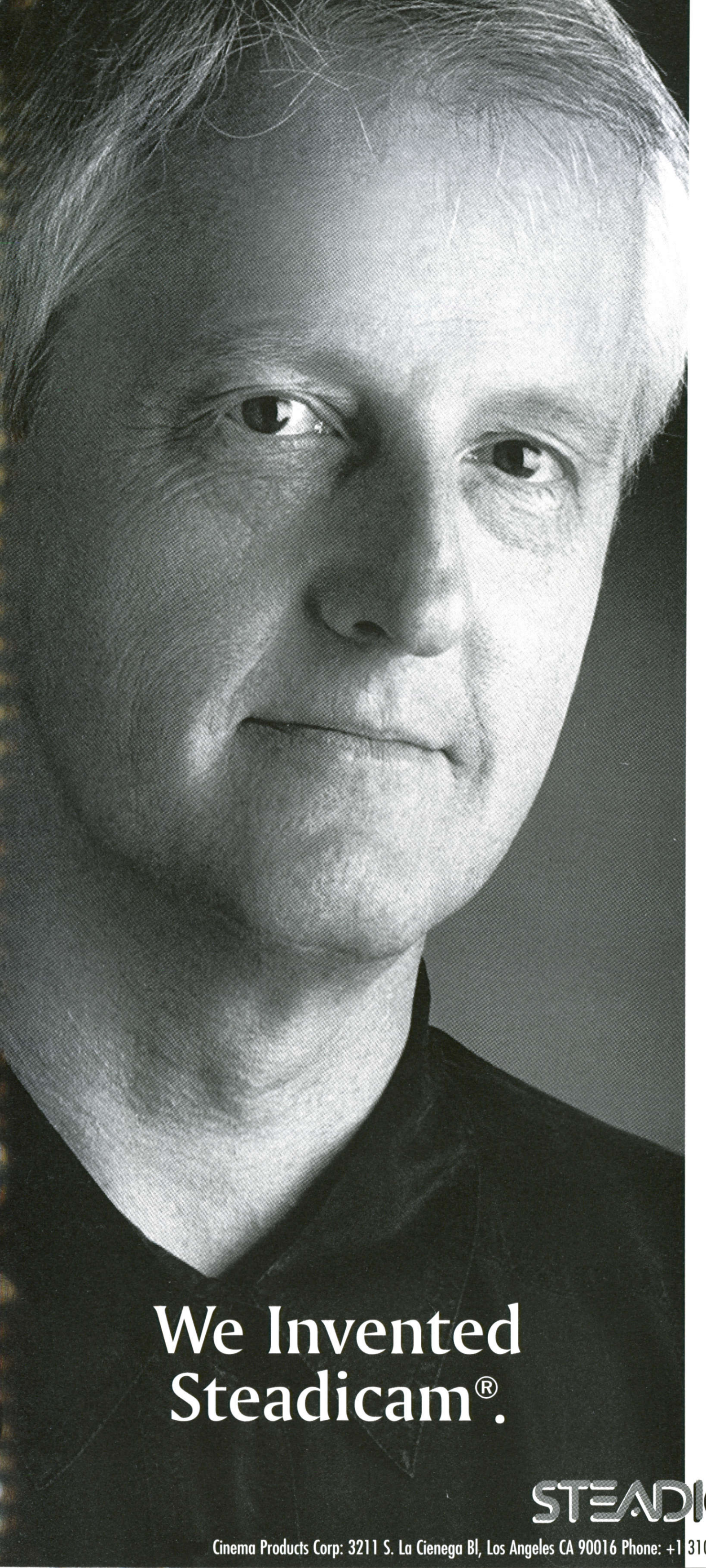

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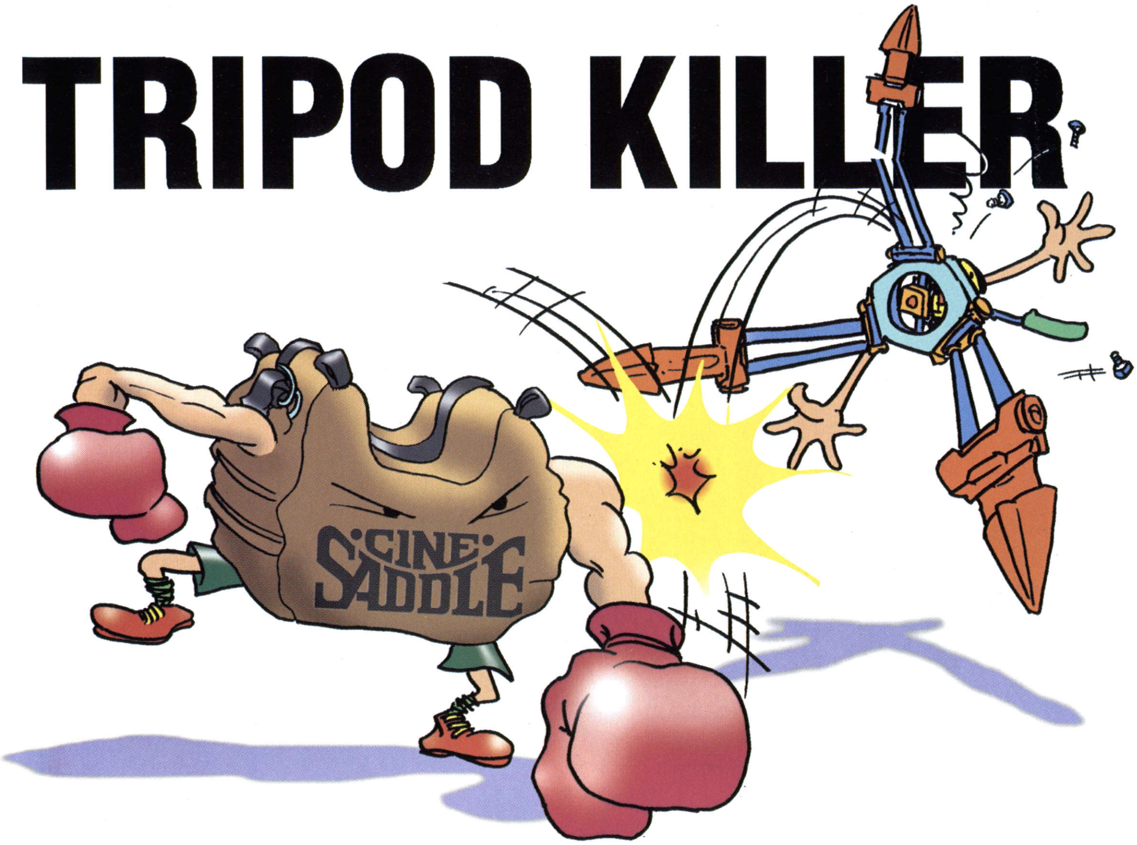

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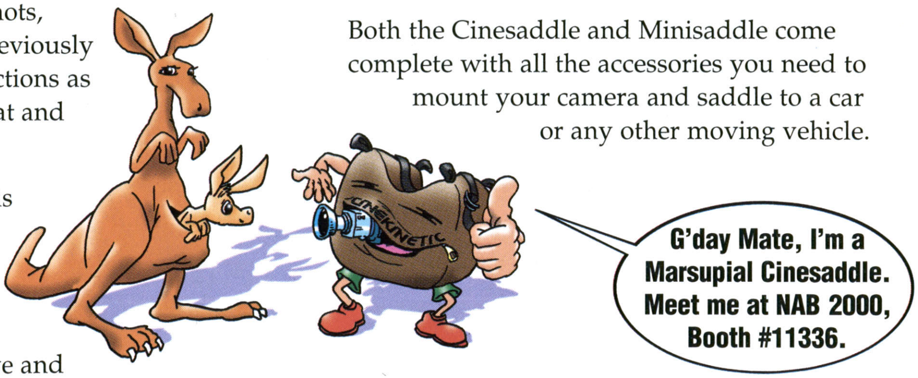
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American Cinematographer

The International Journal of Film & Digital Production Techniques

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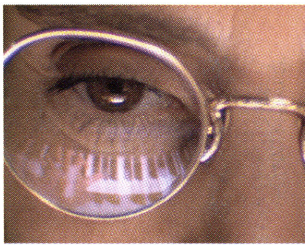
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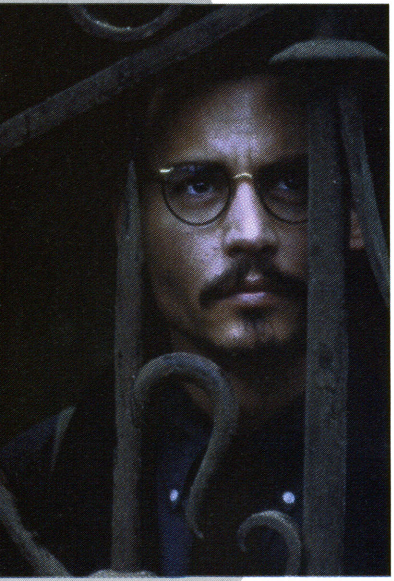

On Our Cover:
Rare-book appraiser Dean Corso (Johnny Depp) finds himself drawn into a devilish dilemma in *The Ninth Gate,* directed by Roman Polanski and photographed by Darius Khondji, ASC, AFC (photo by Peter Mountain, courtesy of Artisan Entertainment).

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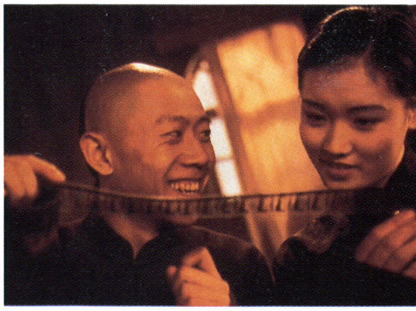
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Contributing Writers:
Stephanie Argy
Bob Fisher
Jay Holben
Marie Mirchevsky
Lucy Nicholson
Beth Pinsker
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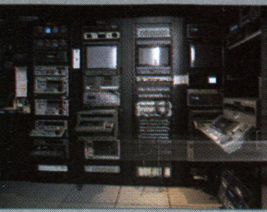

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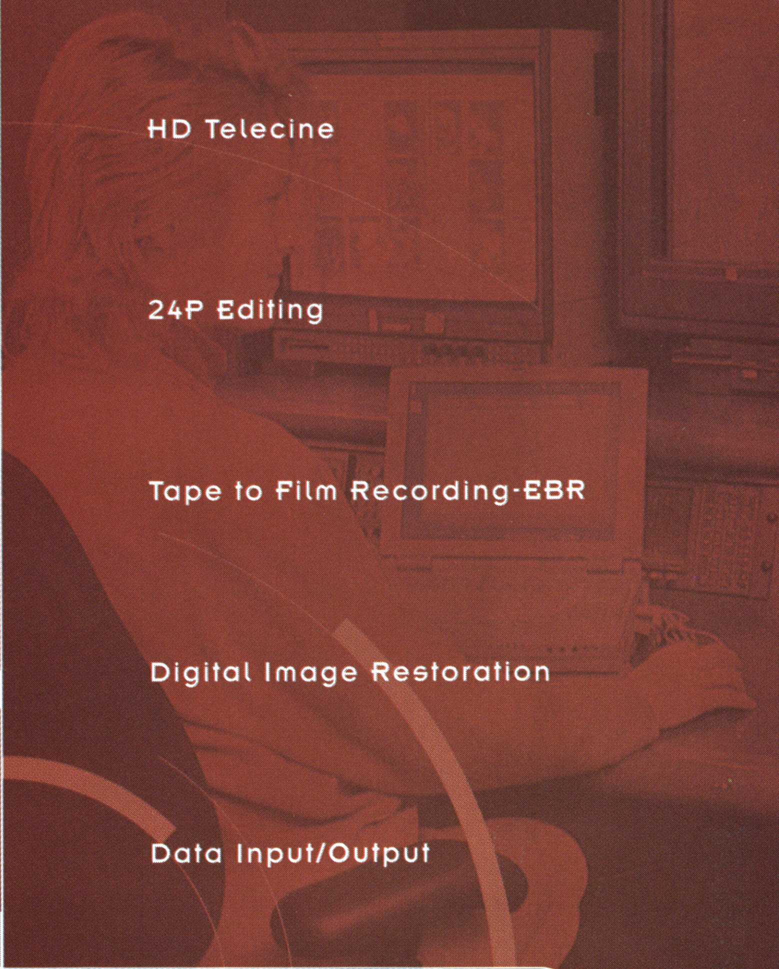

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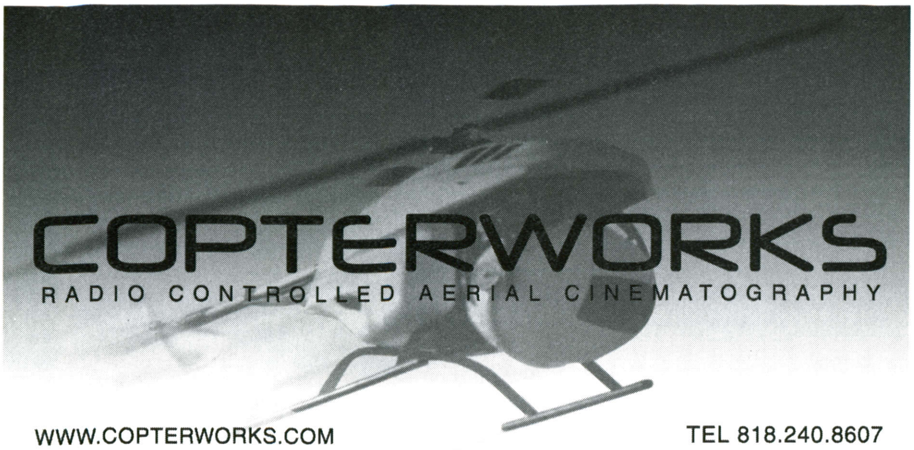

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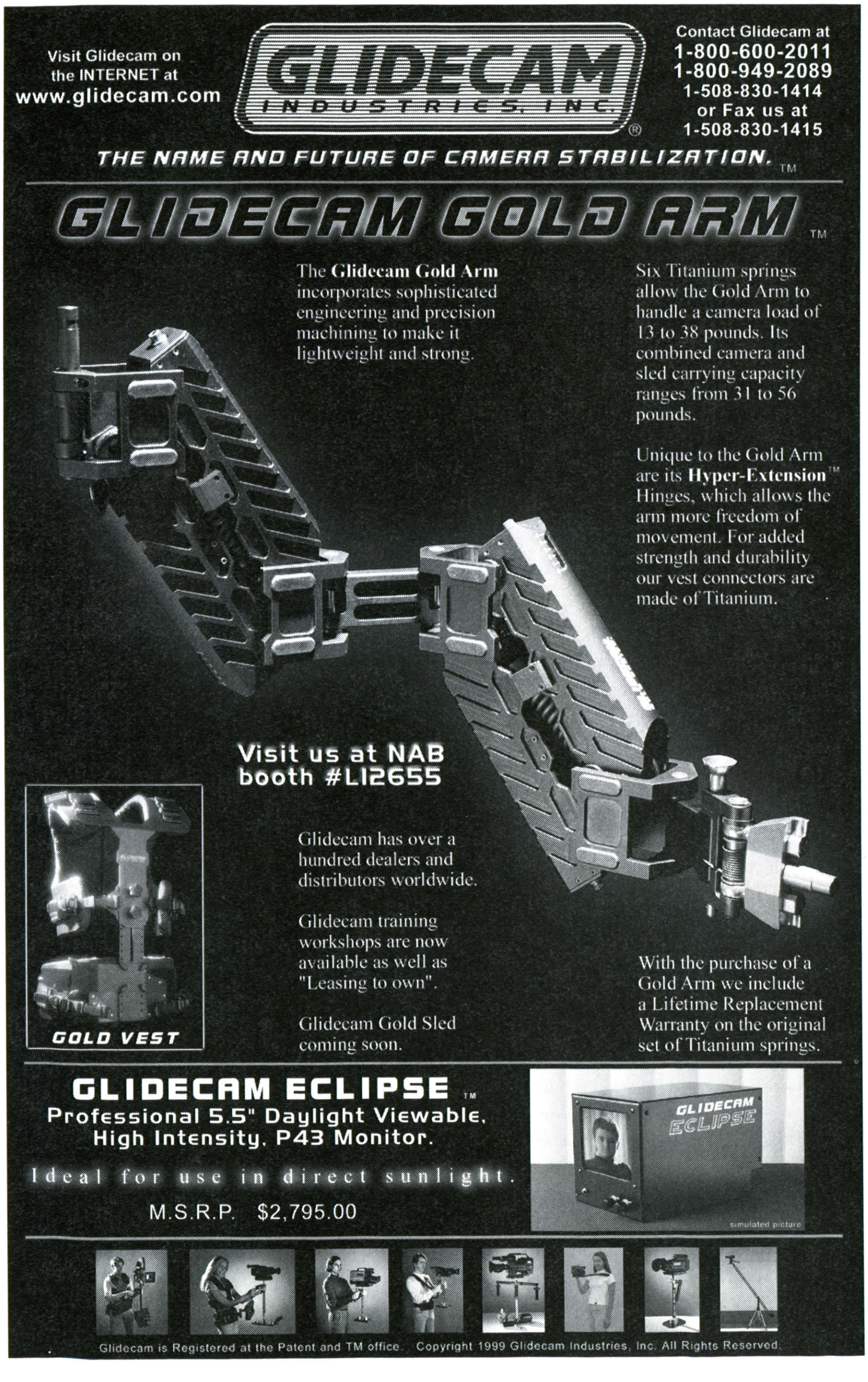

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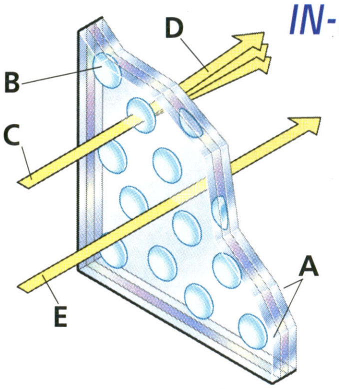
FACT: A softening filter that maintains this high degree of image quality, simply is not available anywhere else.



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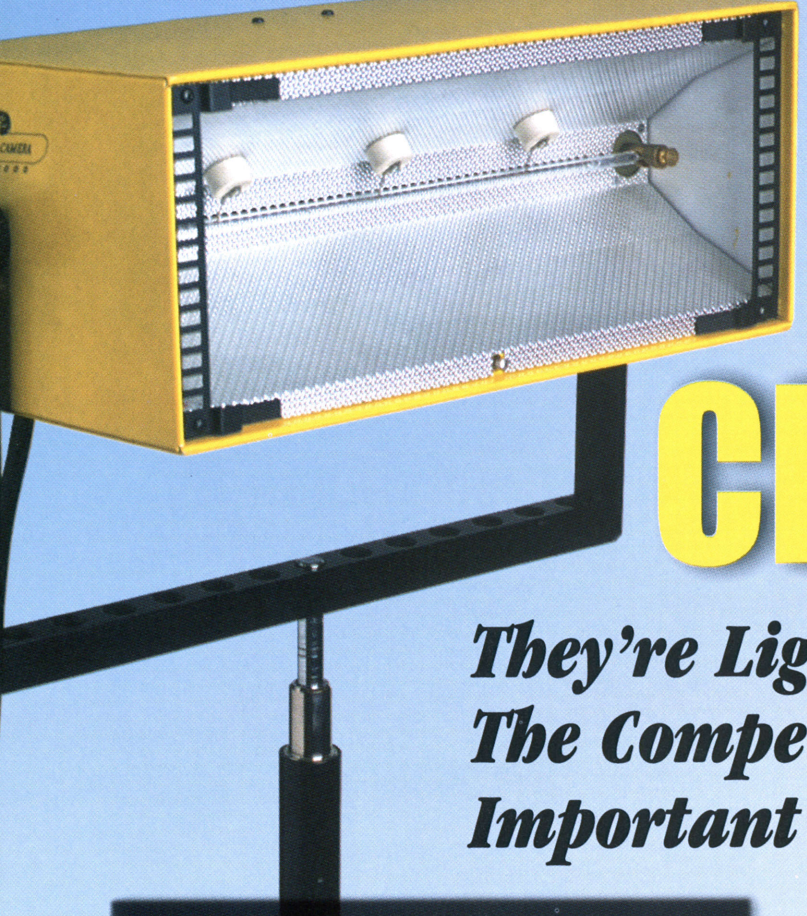

Getting Shots Clairmont

They're Light Years Ahead Of The Competition. And For Many Important Reasons...

Every now and then we like to remind cinematographers, directors and producers about the advantages of using Clairmont strobes. For capturing dynamic action shots, highlighting motion and working with food... our exclusive compact design, cool strobes are the answer.

Proven Time After Time

But don't just take our word for it. Noted Director of Photography Gary Manske says, "I have used Clairmont strobes on dozens of commercials in a variety of ways. This has included capturing extreme action in toy spots, to enhancing the beauty of liquid on food shots. I most recently used them for an ice cream commercial which featured small candies being dropped on top of a scoop. The Clairmont strobes not only captured the beautiful details, they gave me a low temperature light source to keep the ice cream cold. And on a practical note, the Clairmont strobes are also very reliable and easy to set up. This is always a plus in today's fast paced commercial world!"

Convenient 120v AC Power!

One important reason why Clairmont strobes are so versatile and easy-to-use is that they require only a standard household 120v AC power source. This lets you shoot in virtually any location, and not be limited to using sets on a 220v sound stage or industrial environment.

Works With Most Cameras

Another key factor is that Clairmont strobes can be used with virtually any modern camera; Aaton, Arriflex, Fries/Mitchell, Moviecam —even Panavision. And they can be synchronized with any speed from 4 to 150 fps.

No Special Technicians

Best of all, standard crews can handle the strobes. You don't need any special technicians. The compact 17" wide by 7" tall heads are easily positioned by the cinematographer, with the lighting effect previewed through the camera. Not only does this save money, but you won't have to listen to some guy tell you how to do your job!

Save Up To 30% More!

In addition to not needing to hire a "specialist" to operate lighting, there are other economic advantages to using Clairmont strobes. Like not needing special high speed cameras that "eat" film to sharpen action, and being able to rent Clairmont strobes at very competitive prices. What's more, we've found a three-head Clairmont package to be renting for about 30% less than the competition.

Dramatic Action Is *Easier* With Strobes

Lightweight and Powerful

Each Clairmont strobe puts out 100 foot-candles at 4 feet. If you need more lighting, the compact 17" x 7" heads can easily be gaffer-taped together. A 400-foot-candle source measures only 34" x 14" (or you can configure it 28" x 17"). Using tape to link heads —or attach gels— is no problem, since the strobes run cool. What's more, each head weighs only 10 lbs., so a 4-head bank is only 40 lbs. That's substantially lighter than any competitor's package.

Control The Temperature

If you're shooting food, you need strobes. Regular "hot" lights will most assuredly wilt lettuce, melt ice cream and have an effect on steam, condensation, etc. With strobes, conditions are easier to control.

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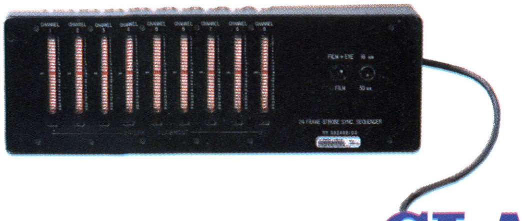
With nine available channels, you can hook up many strobe power packs —and more than one strobe head on each channel by connecting power packs. There are 24 DIP switches per channel, which control the flash per frame. Flash on one or multiple frames per second.



Control The Light

Using Clairmont's Preview Box you can check your setups without running the camera. It's set at 61 fps so the strobe flashes will almost look like regular AC light. You can set the heads to get the desired lighting effect. And there's a Low Power switch on each strobe Powerpack that reduces output one stop. Color Temperature is 7000° K.

In Sync

The Sync Box automatically relays timing signals from the camera. You can capture input from multiple cameras and synchronize them with the strobe pack(s).

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It All Adds Up

We believe there's not a more compact, reliable, easy-to-use and more controllable strobe unit on the market. You won't find a more versatile package and better value than renting Clairmont Strobes.

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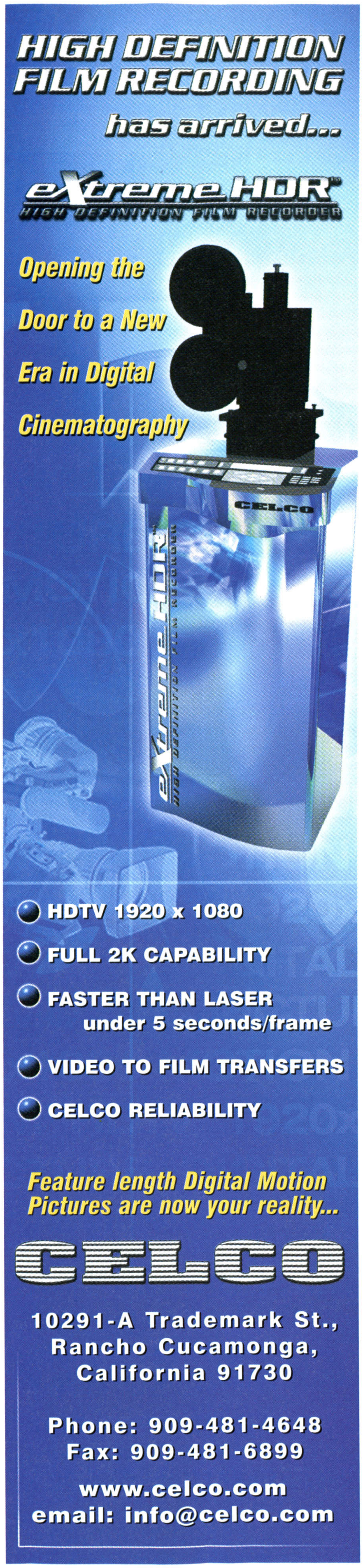
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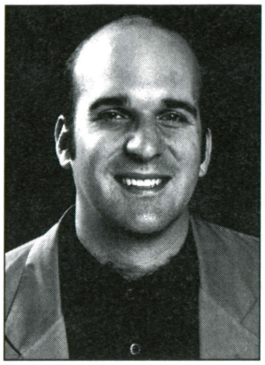
Editor's Note



Throughout the industry, debates continue to rage about the pros and cons of shooting motion pictures on digital video (DV). Hard-line devotees of traditional filmmaking techniques continue to insist that DV cannot even approximate the image quality produced by the major motion-picture emulsions. Meanwhile, advocates of the new capture medium maintain that arguments about image quality are beside the point; confident that DV's resolution will continue to improve, this camp lauds the format's affordability and flexibility, and claims that it will "democratize" filmmaking by opening up the process to those who don't have studio-sized budgets.

This issue of *AC* addresses both sides of this important issue. Our cover project, Roman Polanski's new thriller *The Ninth Gate* ("Satanic Verses," p. 38), features stunning film images captured by Darius Khondji, ASC, AFC. Cinematographers who still work primarily with motion-picture emulsions will also want to pore over Jay Holben's article "Taking Stock" (p. 118), the first in a two-part series of tests that will assess all of the professional imaging stocks available from both Fujifilm and Eastman Kodak. Holben and *AC* technical editor Christopher Probst (who will present Kodak's stocks next month) have spent nearly a year conducting their extensive reviews. Hopefully, their objective results and observations will prove helpful to other working cinematographers.

To stay abreast of DV developments, we've included a trio of fascinating articles about projects that embraced the very latest image-capture techniques. Experimental in the best sense of the word, Mike Figgis's *Time Code 2000* ("Quadruple Vision," p. 52) was shot with four DV cameras running simultaneously in real time, and will be projected in four quadrants that will show each of these perspectives. *Third World Cop*, a Jamaica-based action thriller directed by Chris Browne and photographed by Richard Lannaman ("Caribbean Heat," p. 64), illustrates how a modestly-budgeted dramatic story can benefit from DV's strong suits. Equally intriguing is *Theo Plays Chopin* ("High Note, p. 74), a short film that Robert Primes, ASC designed to test a new progressive-scan, high-definition video camera developed by MIT, Philips and Polaroid.

This issue also features coverage of a certain event held annually in Park City, Utah ("Sundance 2000: Variety Is the Spice," p. 84), where DV is making inroads among up-and-coming indie filmmakers whose imaginations often exceed their cash flow. Although all of our selections were shot the old-fashioned way, insiders are predicting that next year's fest will feature even more DV entries. In other words, the revolution will definitely be projected.

Sincerely,

Stephen Pizzello
Executive Editor
e-mail: stephen@theasc.com

What do these
Oscar® Nominated films
all have in common?

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ANGELA'S ASHES*
ANNA AND THE KING*
ANYWHERE BUT HERE
BICENTENNIAL MAN
BEING JOHN MALKOVICH*
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BOYS DON'T CRY
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THE END OF THE AFFAIR
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THE GREEN MILE*
THE HURRICANE
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MISS JULIE
THE MUMMY*
MUSIC OF THE HEART
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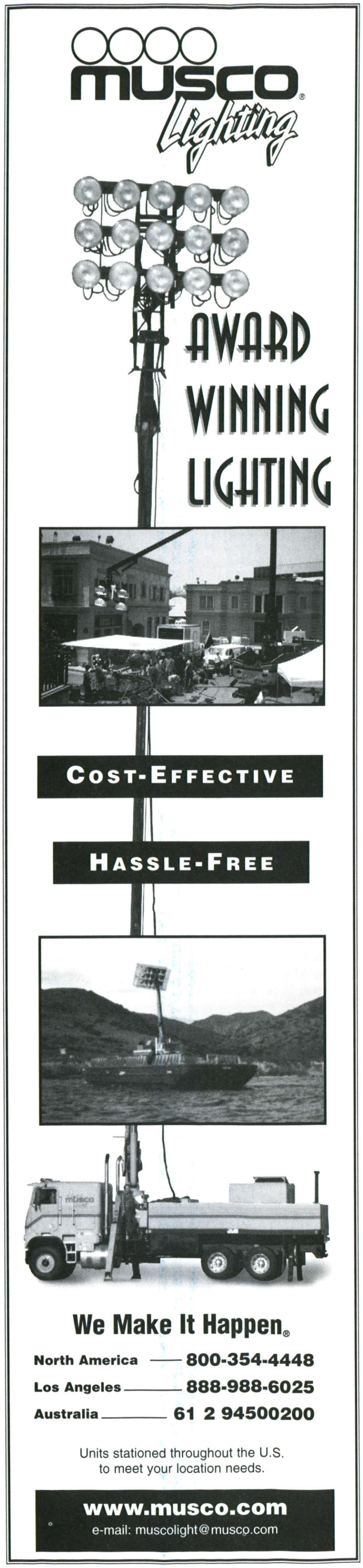

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Letters

MaxiFan

Thank you for running the article "Inventive New Options for Film" (*AC* Feb. '00). I have been trying to get the word around town about MaxiVision48 for a long time. It seems like no one knows about it, and it's the best option filmmakers have right now in the speedily approaching digital age. For those of us who want to be filmmakers instead of videomakers, the news about MaxiVision, MultiVision and Univisium is welcome and long-awaited.

Thank you for helping to spread the word about these terrific options for film! Film is not dead!

— Mark Marchillo
North Hollywood, CA

Rick Never Sleeps

Regarding your December issue, the Disney version of *The Legend of Sleepy Hollow* was released in 1949 as the second half of a two-part feature, *Ichabod and Mr. Toad;* an adaptation of Kenneth Graham's *The Wind in the Willows* comprised the first half. Your confusion about the date may stem from the fact that the film was shown as a two-parter on the *Disneyland* TV series during the 1957-58 season, at which time a live-action version was done for the *Shirley Temple's Storybook* TV series. This version starred Wally Cox and John Ericson and was photographed (I believe) by Norbert Brodine, ASC.

In his review of *Forgotten Horrors,* book editor Ray Zone repeats a still-common error in referring to the 1930 film *Mamba* as having been shot in *two-strip* Technicolor. Unlike the other two-color processes used between the early Twenties and early Fifties, two-color Technicolor was always a single-strip process. The cameras exposed two frames at a time, and the image passed from the lens through a beamsplitter to two apertures, one equipped with a red-orange filter and the other with a blue-green filter.

— Rick Mitchell
Los Angeles

Calling All Digital Entries

RESfest, the touring digital film festival, has announced a call for entries for fall exhibition. Beginning in September 2000, the festival will showcase its digital works in San Francisco, followed by stops in Chicago, Seattle, New York, Los Angeles and Tokyo.

Entries of any genre can originate on any format (film, video, animation, or CGI) but must make use of computer editing and/or effects software. Works will only be exhibited on videotape (½" NTSC/PAL/SECAM VHS, ¾", NTSC Betacam SP, or MiniDV), with the exception of 35mm features, CD-ROMs and DVDs.

RESfest features several programs including shorts, long-form shorts, cinema electronica, digital features and interactive mediums. Entrants must fill out and send in a submission form along with a preview videotape. Early entry deadline is May 1. Late entry deadline is June 5.

For more information, contact RESfest via e-mail (submit@resfest.com) or phone (415-437-2686). Web site address: www.resfest.com.

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FLETCHER

Global Village

Striking Gold in Glasgow's Trash-Strewn Streets

by Graham Rae

The first feature from young Scottish writer/director Lynne Ramsay, *Ratcatcher* is set in Glasgow during the refuse workers' strike of the 1970s. The film tells the tale of James Gillespie (William Eadie), a sensitive 12-year-old devastated by his possible role in a friend's drowning in the local canal. The troubled boy wanders the dirty streets of the city, trying to avoid the overcrowded squalor of the tenement apartment he shares with his parents and sisters. James takes the bus to the outskirts of the city and plays in the new houses being built there. He gazes with awe upon a shimmering, golden cornfield to the rear of the new development, dreaming of the day when he can leave behind his refuse-ridden past and escape to a new, idyllic existence.

Ratcatcher signals the arrival of an innovative new talent on the growing Scottish film scene. Ramsay draws her inspiration from sources as disparate as French filmmaker Robert Bresson, the late Scottish documentarian Bill Douglas, experimental filmmaker Maya Deren and photographer Nan Goldin; as a result, the film is both naturalistic and stylized. The action is impressionistic, driving the film by image and feeling rather than narrative — a poetic approach that mirrors the poignancy and melancholy of James's disintegrating worldview.

Credit for *Ratcatcher*'s hazy, dreamlike ambience must also be attributed to German-born cinematographer Alwin Kuchler, who was a professional photographer for three years before attending the National Film and Television School in London, where he met Ramsay. Kuchler says he became interested in working with Ramsay after seeing the color photographs in her NFTS application portfolio. "They were incredibly good," Kuchler recalls. "They were very abstract and very sensual, but they were still telling the story."

Ramsay had earned a degree in photography from Edinburgh's Napier University, and she enrolled in the NFTS as a cinematography student before deciding to pursue directing. Kuchler worked on all three of the award-winning shorts Ramsay made at the NFTS: *Small Deaths* and *Gasman*, both of which won the Cannes Prix du Jury (the latter also won a Scottish BAFTA), and *Kill the Day*, which won the Clermont Ferrand Prix du Jury.

Kenny (John Miller) and James (William Eadie) play with a mouse on the rubble-filled streets of Glasgow.

Photo courtesy of Pathé Distribution.

Upon graduating in 1994, Kuchler's first feature work was on Ngozi Onwurah's *Welcome to The Terrordome*, which won prizes at film festivals in Cologne, Birmingham and Verona. He then worked on a number of other shorts, commercials and documentaries before Ramsay asked him to join her on *Ratcatcher*.

Ramsay's photographic sensibility and background are strongly conveyed in *Ratcatcher*. The film is full of tiny, cinematic snapshots of Scottish working-class life. Particularly evocative is a shot of James's father in which a wad of toilet paper covers a small shaving nick adjacent to a huge, razor-inflicted scar on his cheek — an image that speaks volumes about the character and his lifestyle. Kuchler says of the scene, "It's a very typical Lynne moment. So many directors would give you no time to prepare a shot like that, thinking that it's not important or that it doesn't drive the narrative. Lynne will spend an hour getting something like that right, which is fantastic."

This somewhat unconventional approach to filmmaking permeated all aspects of the production. Because Ramsay hadn't been indoctrinated in traditional filmmaking methods before attending film school, she was much more open to experimentation, and her team grew along with her. "The first time we worked together, she told me roughly what she wanted to do, and then it became more of an experience together," says Kuchler. "One thing I liked about her was that she said she'd rather get f***ed-up rushes than boring rushes, which encourages you to be right on the edge of what you're doing."

Ratcatcher was shot with a Moviecam Compact because the filmmakers needed a very well-balanced camera for the extensive handheld footage. "A lot of people who go to film school normally want to have the most expensive equipment possible, [but] we didn't use any really complicated equipment," Kuchler says. "We used a Fisher dolly, which I love. We used Steadicam once or twice, for shots in which the father stumbles drunkenly out of a bar; Lynne doesn't generally like Steadicam because she's so specific about what she wants to see in the frame. The rest of the time, [the camera movement] involved either very small dolly moves or handheld work — very basic stuff.

"There's a straightforward track onto a window through which the boy first sees a field, and because there are

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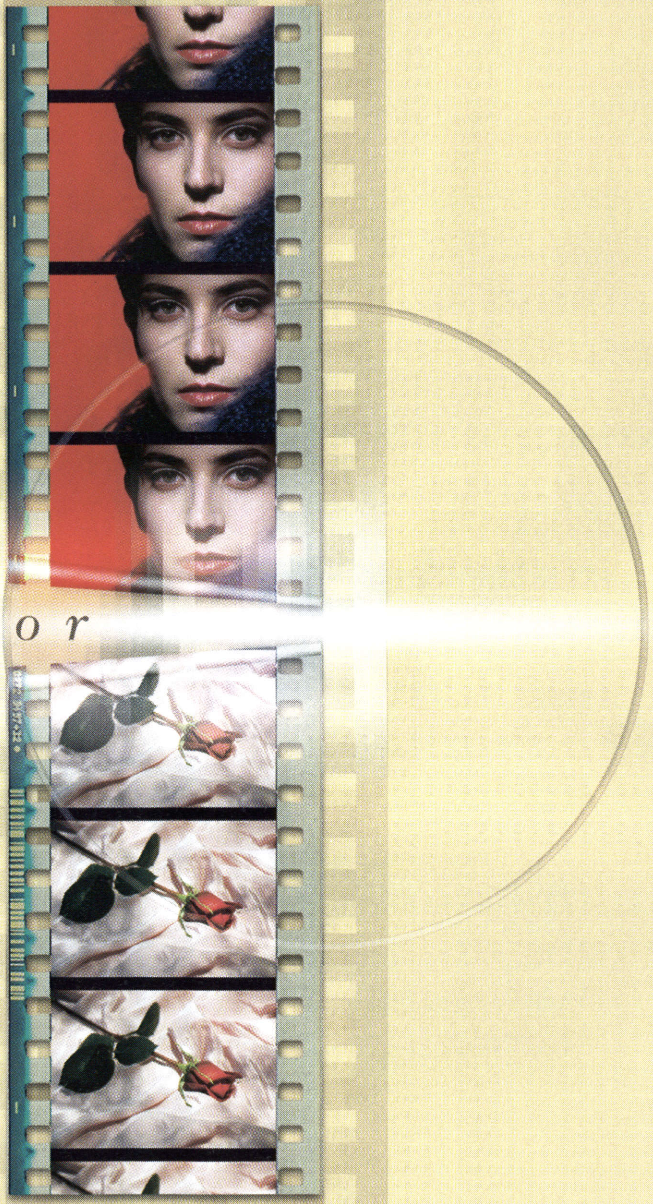

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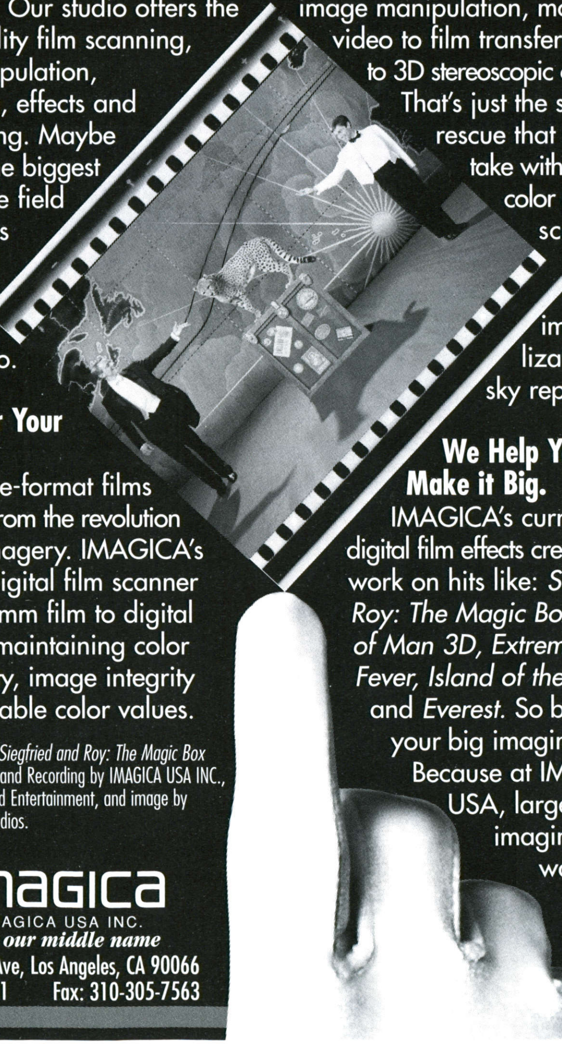

70/15p frame from *Siegfried and Roy: The Magic Box* — 65mm Scanning and Recording by IMAGICA USA INC., produced by L-Squared Entertainment, and image by Rainmaker Digital Studios.

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so few of those moves in the film, that one shot gains power — you're not expecting it, and your eye isn't used to it. It's a simple, strong move toward the window, and you feel you're being drawn out, or that you're flying with the boy out the window."

In developing a visual style for the project, the filmmakers examined a lot of photographs of Glasgow from the 1970s — a period in the city's history that, as Ramsay puts it, looked almost medieval, with refuse strewn everywhere. Kuchler wanted the film to be saturated to match the look of the archival material, because James had to wander through a sweltering, stinking landscape in which the mounting piles of refuse mirrored his increasingly disordered mindset. Kuchler notes ruefully that the film was shot during the rainiest summer in Glasgow's recorded history.

The filmmakers chose to render *Ratcatcher*'s surreal, somnambulistic tone on Fuji 500 ASA (8571) stock, which the filmmakers liked "because it had a very silky look. It had softer blacks, and we wanted to have shallower blacks because we felt it represented the 1970s better, [based on] the archive material of the time," Kuchler notes. "We also went for lower printing numbers. Fuji 500 looked very good with lower printing numbers; it looked very painterly, pastel-like and soft. For sunny exteriors, we used Fuji 125 [8531]."

In one comic fantasy sequence, Kenny (John Miller), an animal-loving friend of James's, ties a mouse to a balloon and sends the hapless rodent aloft into the wild blue yonder. The mouse flies away from Earth and lands on the moon, which is populated entirely by mice. This brief, unexpected flight of fancy celebrates the unfettered imagination of a child. The scene was shot on black-and-white 16mm and was post-developed by 1 ½ to 2 stops at 400 ASA. "We telecined it and refilmed the telecine with video," Kuchler recalls. "We put some glasses in between to decrease the quality, then refilmed it a second time before we actually filmed it back on the set. The mouse sequence is in two halves. The first shot [of the mouse flying

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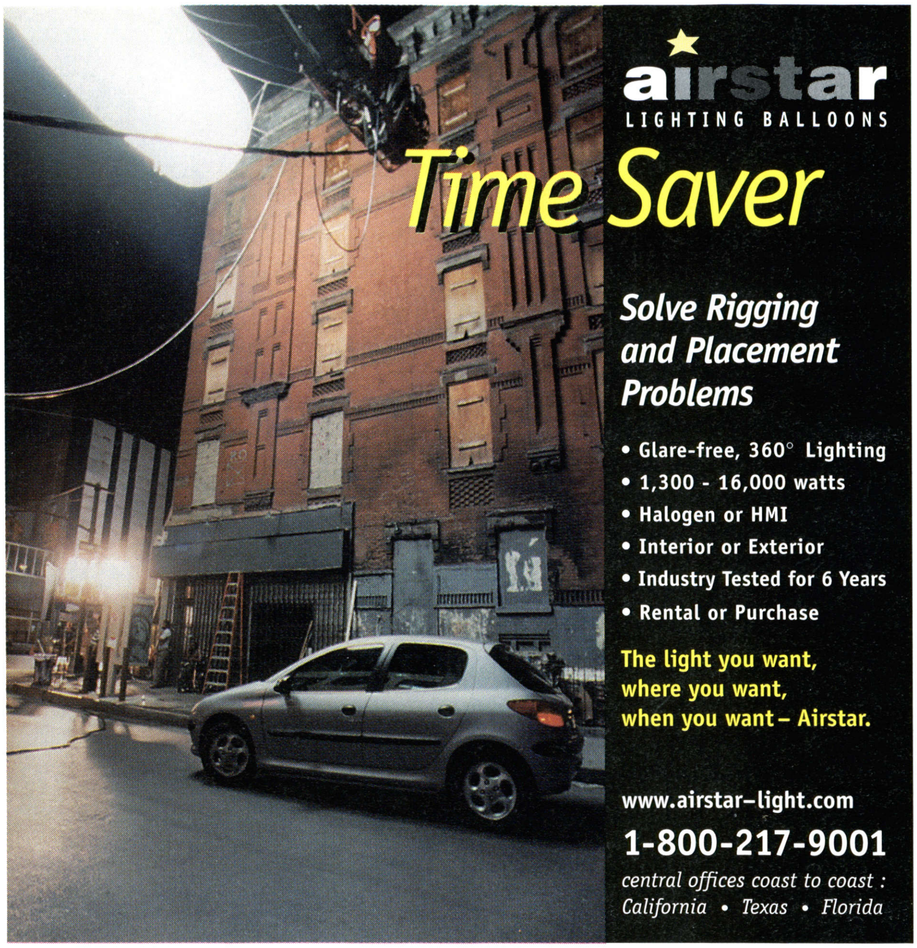
to the moon] is set in front of a greenscreen; then there is the part we shot back off a television to look like the moon-landing footage. We refilmed it on video to make the quality even weirder and more 'down,' making it as grainy and desaturated as possible."

The director of photography favored Arriflex/Zeiss VP-2 and VP-3 variable-prime lenses on the shoot. Kuchler needed a combination of very fast lenses because he was using chocolate filters to take out a lot of the light during filming; he also needed lenses that would let in a lot of light but still remain very sharp. The footage shot with chocolate filters was partly graded out again to desaturate it, because the film's budget wouldn't allow expensive color lab techniques.

Kuchler also combined lighting gels with filters to get odd color schemes. He is particularly enamored of one shot in which a combination of heavy-blue Glasgow sky, a fluorescent tube correction gel and a chocolate filter gave him a palette of extremely complementary colors. However, he notes that this technique was "quite nerve-wracking, because we had so much humidity and rain that we could get rainbow effects off the gels if we packed them between two glasses. We had to check them after every take because unwanted effects would appear." He also made use of black ProMist filters and tobacco filters for exteriors where the chocolate filters were too dense.

Kuchler processed his film at Technicolor lab in London, and he used lower printing numbers for some of the footage to get a flatter look. *Ratcatcher* was edited on an old-fashioned Steenbeck, for which Kuchler was thankful. "That was great, because it meant we got printed rushes as opposed to video rushes. Video rushes are terrible for a cinematographer, especially when you go for a specific look [and] your printing numbers are important to you. Video can't really reflect that, and you can't maintain control over it." ■



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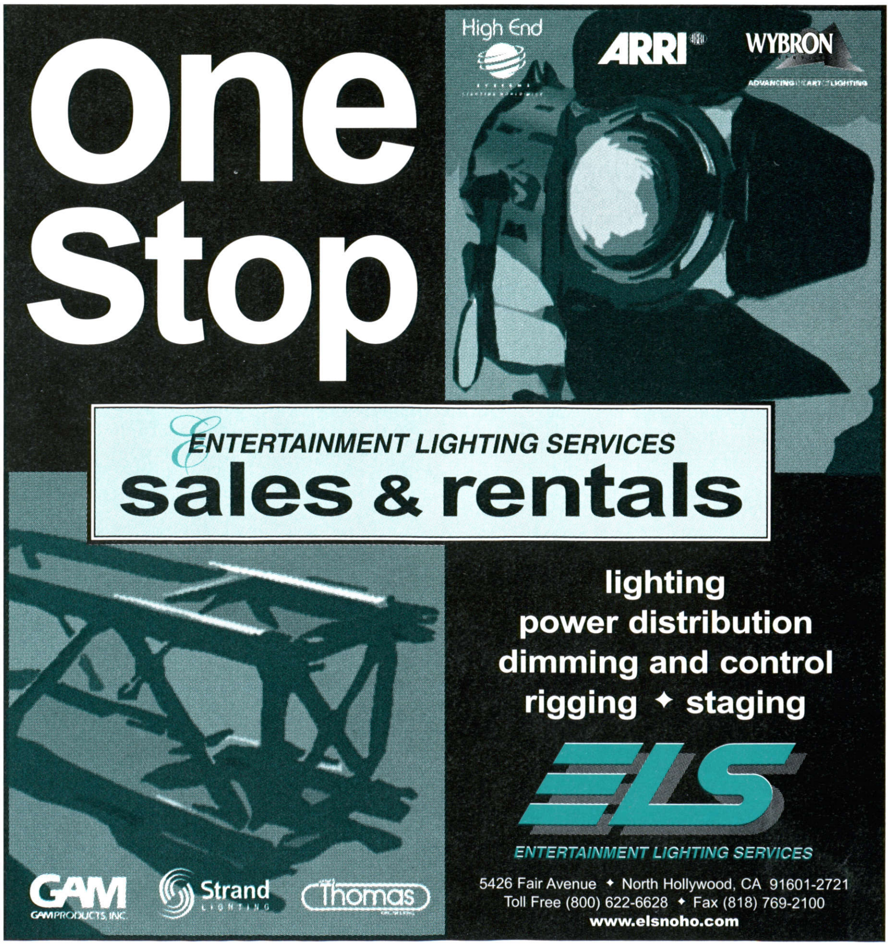

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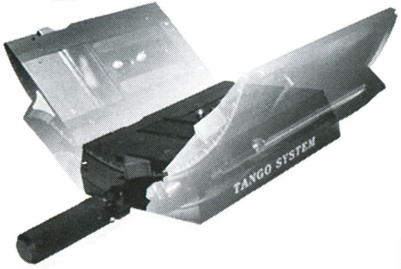

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DVD Playback

by Chris Pizzello

The Third Man
The Criterion Collection, $39.95

The story goes that William Wyler, after seeing *The Third Man,* presented director Carol Reed with a spirit level to place on his camera for his next outing, in order to forcibly prevent Reed from using any more Dutch angles. Yet it is Reed's very modernism that makes this 1949 film noir study of postwar corruption in Vienna such an invigorating movie experience. The film's baroque visual style has caused many film buffs to wonder whether Orson Welles (who delivers a delicious star turn as Harry Lime, the utterly venal but strangely charming racketeer) strayed from his acting chores on the set to take a hand in the film's direction. The answer may be yes and no. Welles was really an actor-for-hire on this film, one whose casting was forcibly opposed by American distributor David O. Selznick, but the daring visual spirit of Welles's own *Citizen Kane* pervades Reed's film.

Featuring digitally restored image and sound, *The Third Man* has been given a superb, vibrant transfer by Criterion. While there is noticeable flickering of the image in some scenes, the clarity and contrast level of BSC member Robert Krasker's rich, black-and-white images are excellent overall. You can see what Criterion was up against in one of the disc's most interesting supplements, a five-minute "before and after" demonstration detailing some of the staggering 22,000 repairs that were made to the print.

Elsewhere, the disc boasts the exhaustive attention to detail that characterizes many of Criterion's releases. Writer/director Peter Bogdanovich offers a scholarly introduction to the film. The viewer can listen to an abridged reading of Graham Greene's script treatment, hear an episode of Welles's *The Lives of Harry Lime* radio series, and compare the opening voice-over narrations of the British and American versions of the film. (Selznick hated Reed's cynical introduction in the British version and ordered lead actor Joseph Cotten to deliver a less morally ambiguous version for the Yanks.) If all of these bonuses aren't enough, the disc also offers archival footage of Viennese composer Anton Karas playing *The Third Man*'s naggingly catchy zither music, a look at the actual Vienna sewers where Lime loved to lurk, and plenty of vintage production photos — but not a single one of Welles looking through the viewfinder.

The Graduate Special Edition
MGM, $29.98

Has there ever been a greater one-word line of dialogue than "Plastics!"? With brutal economy, this exclamation sums up the entire shallow, upper-middle-class, suburban world that track star Benjamin (Dustin Hoffman) is running from throughout *The Graduate.* The screenplay of Mike Nichols's seminal 1967 study of the generation gap has been justly celebrated through the years, but this MGM DVD highlights the film's equally memorable visual style.

An inventive, insightful director, Nichols clearly had a lot of fun framing the film's witty images with cinematographer Robert Surtees, ASC, whose work garnered an Oscar nomination. Anyone who says comedies need not be well-photographed should take another look at the impeccable, widescreen compositions preserved on this DVD.

Although *The Graduate* has been given a solid transfer by MGM, Nichols's zest for risk-taking occasionally tests the disc's technical boundaries. For example,

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the blacks don't quite hold up in a daringly drawn-out dialogue scene between Benjamin and Mrs. Robinson (memorably embodied by Anne Bancroft) that is played almost entirely in the pitch blackness of a bedroom. For the most part, however, the images have good sharpness and color saturation, with surprisingly little grain. The worst aspect of the disc is the Dolby Stereo Surround sound, which to these ears sounds more like tinny mono.

A director's commentary from Nichols would have been a real treat, but MGM has instead included an entertaining documentary with recollections from some of *The Graduate*'s principals: Hoffman, actress Katharine Ross, co-screenwriter Buck Henry and producer Lawrence Turman. Hoffman, in particular, is a gifted storyteller, with such a razor-sharp memory of the shoot that the rest of his comments are included in a separate supplement. When watching the film, make sure to listen for the pathetic whimpers Hoffman voiced in a certain take, which Nichols mischievously spliced throughout the movie.

Rushmore
The Criterion Collection, $39.99

The modern flipside to *The Graduate* would be Wes Anderson's *Rushmore*, which tracks the misadventures of a tireless, go-getting prep school protagonist (a role nailed by newcomer Jason Schwartzman) who knows *exactly* what he wants out of life. The problem is, the world around him can't quite contain his ambitions. Such is young Max Fischer's assurance that middle-aged millionaire Mr. Blume (Bill Murray) earnestly asks the enterprising lad, "What's the secret, Max?" The line is just one more sly inversion in a decidedly unique coming-of-age film that presents the slightly surreal universe of Rushmore Academy with total integrity from beginning to end.

Cinematographer Robert Yeoman's cool, autumnal tones and Anderson's symmetrical compositions are presented flawlessly on this Criterion disc. The Anderson-approved widescreen anamorphic transfer boasts superb detail, brilliant color saturation and perfect blacks. The viewer can almost feel Rushmore's deep-green lawns amid the film's evocative fall ambiance. Max's hilariously crowd-pleasing school plays really come alive, thanks to the surprising punch of the disc's the Dolby Digital 5.1 sound (which is particularly effective during his ambitious staging of the Vietnam-film homage *Heaven & Hell*).

Criterion has produced a DVD that truly exploits the format's dazzling capabilities, and the strongest tribute to *Rushmore* may be the fact that the film itself actually stands up to the cornucopia of analyses packed onto the disc. First off is an excellent commentary provided by Anderson, co-writer Owen Wilson and Schwartzman. Their insights enhance an idiosyncratic film that may strike some, on an initial viewing, as being slightly arch. Anderson's brother, Eric, who has a bit part in the film, contributes an amusing, behind-the-scenes look at the making of *Rushmore*, and an entire *Charlie Rose* program featuring Anderson and Murray is also included. The viewer can even enjoy footage of cast auditions, Anderson's hand-drawn storyboards, the trailer in widescreen anamorphic (!) and the Max Fischer Players' theatrical adaptations of *Armageddon, Out of Sight* and *The Truman Show* for the 1999 MTV Movie Awards. One last bon-bon is offered for true *Rushmore* obsessives: a hand-drawn poster insert of Fischer's world, which painstakingly maps out the film's key events. ■

Next Month in DVD Playback:

Natural Born Killers
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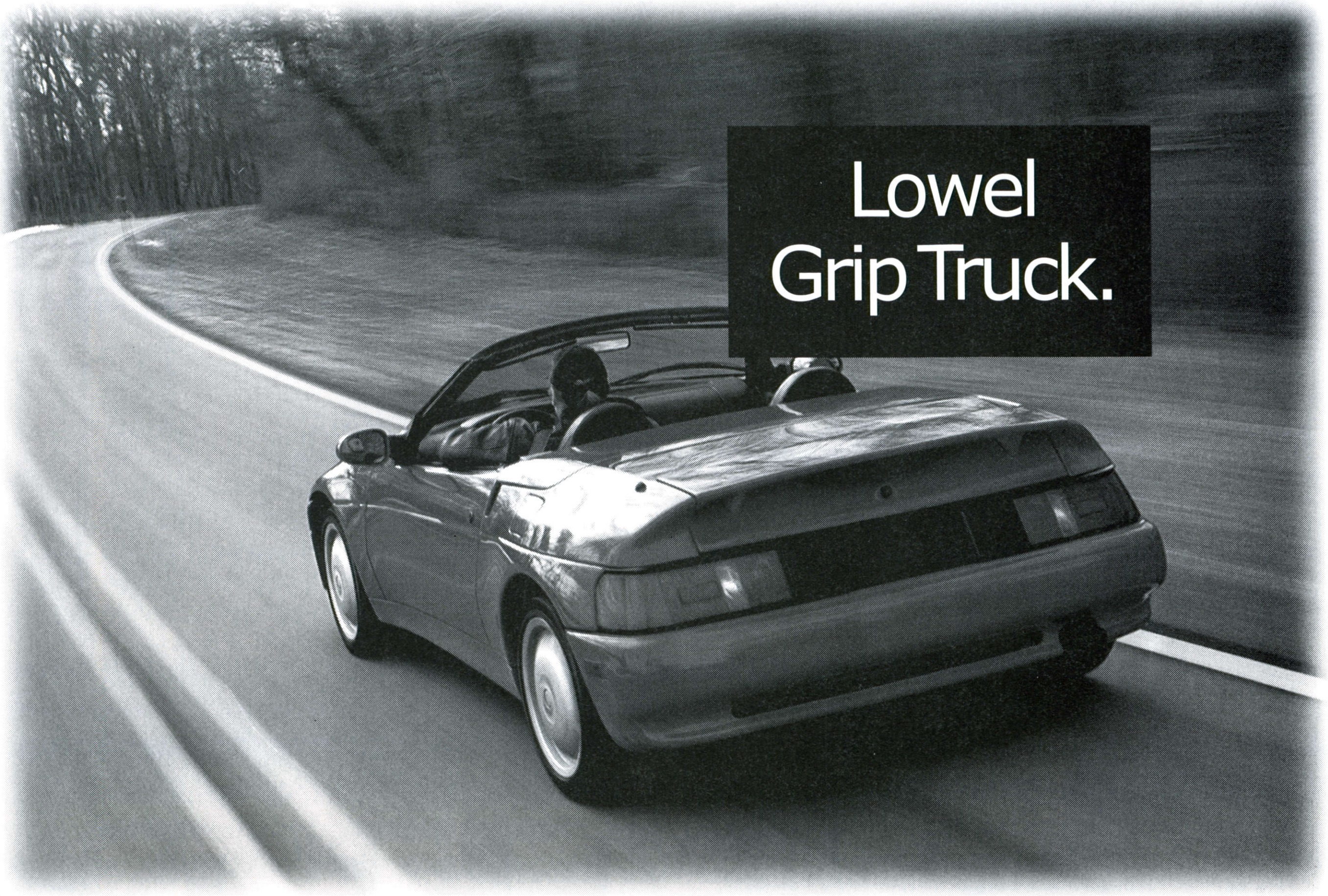

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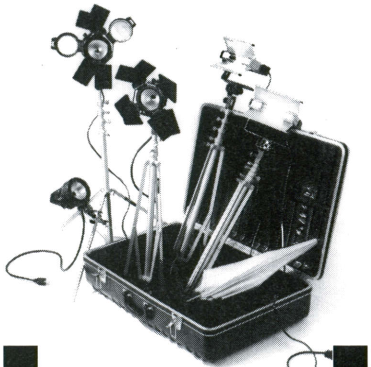

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Production Slate

compiled by Douglas Bankston

Faculty and supporters of the new Los Angeles Film School gather around the Platinum series camera centerpiece during the dedication ceremony of the Panavision Cinematography Lab. Pictured from left to right are: Kelly Simpson, head of Panavision's New Filmmaker Program; Amedeo D'Adamo, L.A. Film School dean; Janusz Kaminski, ASC, a school advisory board member; Carolyn Pfeiffer, school president; Bob Harvey, Panavision sales vice president; and Ralf Bode, ASC, a member of the school's cinematography faculty.

Photo by Ryan Miller/Berliner Studio, courtesy of the Los Angeles Film School.

Launching the L.A. Film School

by Douglas Bankston

On September 8, 1999, the Los Angeles Film School launched an effort to reinvent film school in the heart of Hollywood with a class of 16 students. Perceiving a void in Los Angeles for intensive film-production training, Bud MaLette, founder of the Vancouver Film School; producer Thom Mount, president of the Producers Guild and former head of Universal Pictures; and Paul Kessler, president and fund manager of Bristol Capital LLC, founded the L.A. Film School and opened its doors in a matter of months.

Located in the former RCA headquarters on Sunset Boulevard, the school is transforming the building to suit its cutting-edge needs. Its geographical position in the capital of the entertainment industry provides the school with access to exceptionally talented faculty who work in the "biz," as well as access to the latest film technology and services.

Longtime independent-film producer Carolyn Pfeiffer, whose most recent project was the Jamaican digital-video picture *Third World Cop* (see page 64) presides over the school. In addition to its faculty of working film professionals, the school boasts an advisory board that includes such industry heavy-hitters as Janusz Kaminski, ASC; directors Phillip Noyce, Alan Rudolph and Amy Heckerling; production designer Richard Sylbert; editor Dede Allen; and costume designer Milena Canonero, among many others. All of the advisory-board members frequently speak to the students. The school has strategic partnerships with several companies, including CFI for laboratory development work, Sony for high-definition (HD) production and Panavision for cinematography.

Students who enroll at the school enter an intensive, year-long program that gives them the option of studying cinematography, directing, producing, editing, production design, visual effects or sound design and mixing, among other areas. The student-to-faculty ratio is kept low to optimize hands-on education. "We're a place where you just do films," says Amedeo D'Adamo, dean of the school. "We are part of the Hollywood filmmaking machinery. Folks are willing to come in and talk to our students at the drop of a hat, and that isn't always true at every film school. We make commitments to having a very high teacher load and very few students per teacher, about eight to 10 in a class. They're not lost in a crowd of 25 undergraduate students."

Those students get hands-on experience in state-of-the-art facilities. The first floor houses a large soundstage with a greenscreen cyclorama and a studio HDTV soundstage. Both stages are equipped with full 400A lighting grids with dimmer controls. A complete HD control room overlooks the HDTV stage. The mixing room features a 96-channel SSL Axium console. Also on the first floor is the film school's 350-seat, THX-certified stadium theater with dual 35mm projectors, a 16mm projector and a digital DLP-based HD projector. On other floors of the building, edit bays house Avid non-linear editing systems and Pro Tools systems. The school is constantly expanding, with graphics and 3-D animation stations on the way, as well as HD telecine equipment. The theater and all rooms and stages are wired together to route signals throughout the building.

Panavision recently dedicated the Panavision Cinematography Lab soundstage, and will provide students

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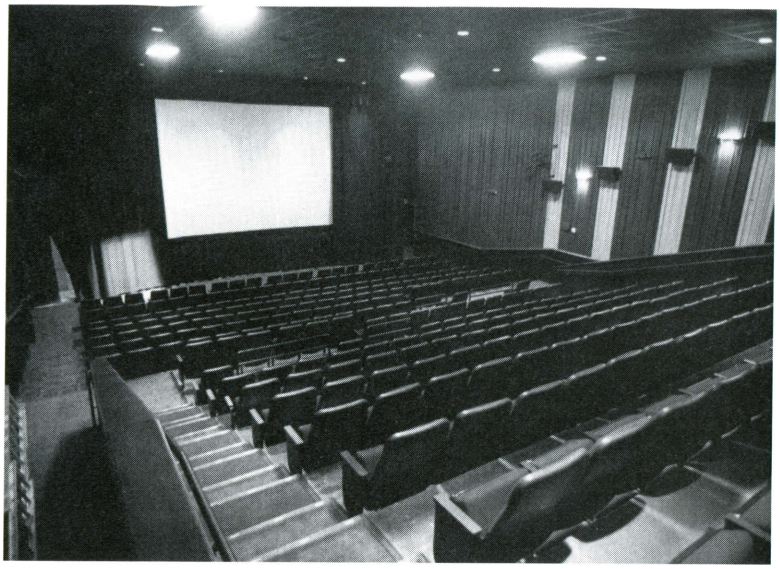

Top: The school's 350-seat THX-certified stadium theater can project 16mm and 35mm works, as well as digital DLP high definition-based works. Middle: L.A. Film School dean D'Adamo sits in the Panavision Cinematography Lab, which features a completely level floor suitable for dolly use, a built-in lighting grid, and a 24-channel dimming system. Bottom: On the high-definition soundstage (with the cyclorama stage in the background), cinematography instructor Michael Barrett sets up a hi-def training exercise.

Photos by Chris Pizzello.

with training by Panavision personnel. The lab features a built-in lighting grid and 24-channel dimming system, and has a completely level floor ideally suited to dolly use. Panavision has also donated cinematography scholarships for future students.

To teach cinematography and lighting, the L.A. Film School has brought in expert, working cinematographers. The ASC's 1999 Lifetime Achievement Award-winner, William Fraker, gladly teaches his craft to cinematography students. "At the L.A. Film School," he says, "they want you to learn a little bit about everybody's job, and it's an all-film, totally immersive program. These students want to know everything you can teach them, and they want to know it *now*!"

Veteran director of photography Ralf Bode, ASC (*Saturday Night Fever*, *Don Juan DeMarco*, *A Simple Wish*), teaches both beginning and advanced cinematography. After the first month of beginning cinematography, cinemtography-focused students progress to advanced classes, where, according to Bode, "I have them photograph a film the way I do in preparation. I test film stocks. I test filters. I go location scouting and test locations. I look at other work that is similar. I tell them that in a school environment, they are here to fail in one way, but [they should] put as much effort into the exercises as possible [so they] get into the habit of thinking that whatever they are filming is a professional project."

Michael Barrett, director of photography on such independent projects as *Safe Men* and *The Suburbans* (and a former cinematography instructor at Columbia University), handles the advanced lighting course. "I'm trying to get the students away from the usual backlight, keylight and what have you, and to make them understand the quality, the intensity and the color before getting too technical," Barrett points out. "I will never say anything is incorrect. It's more about what's appropriate to the story."

In Barrett's class, students analyze paintings and films using the

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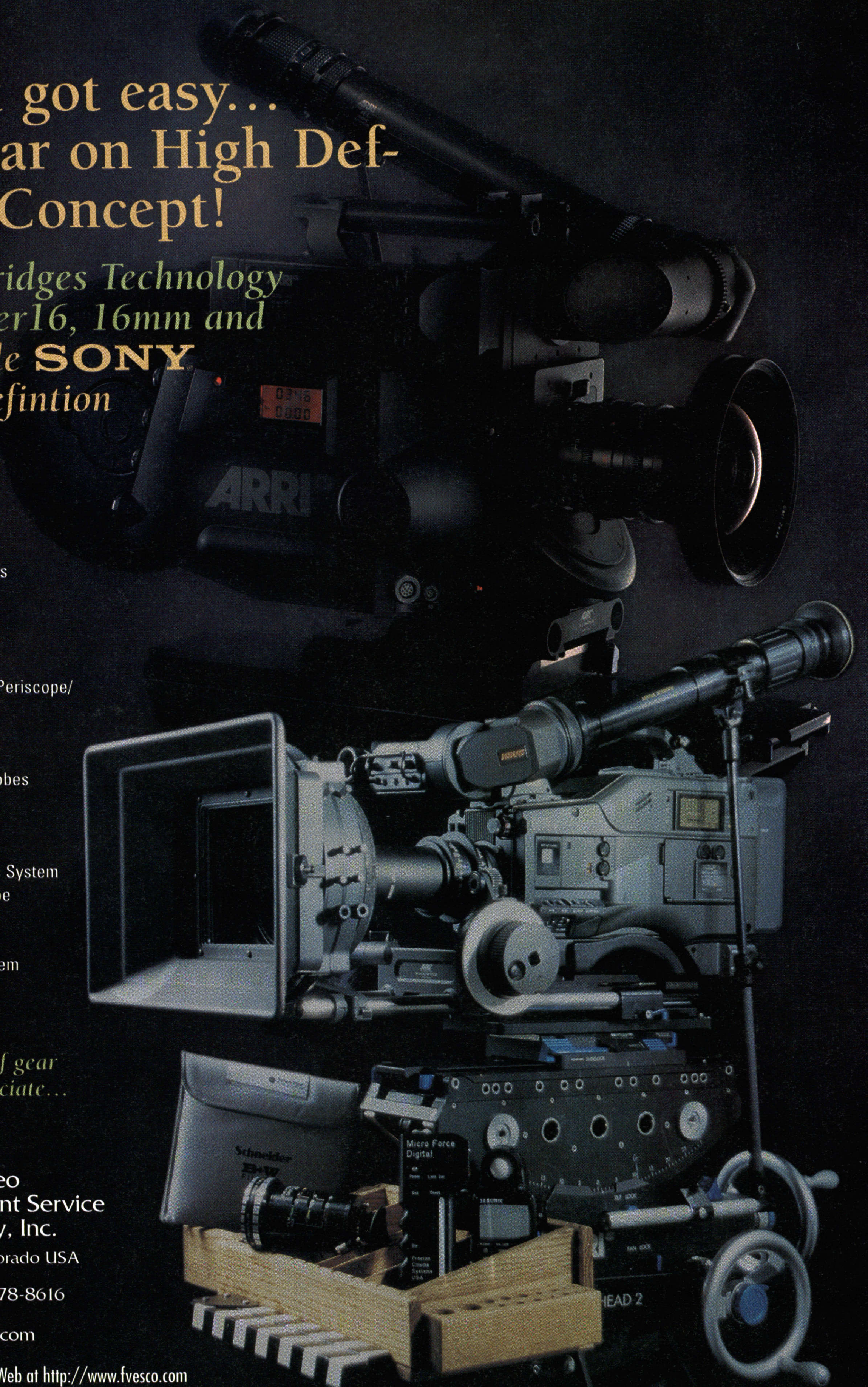

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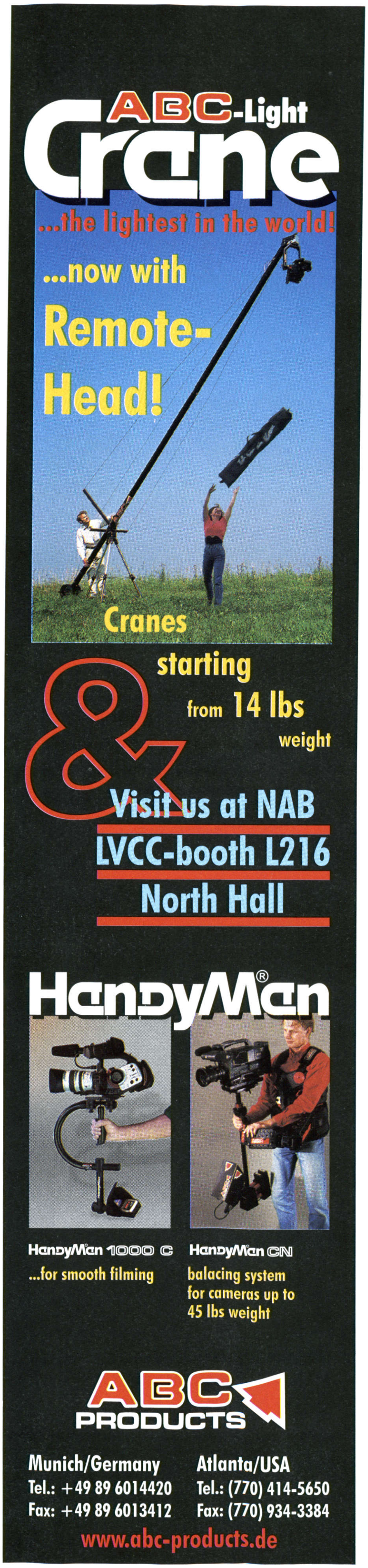

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Ansel Adams zone system, which divides the gray scale into zones from pure black to pure white. They then apply those lessons to their own practical lighting exercises with the latest lighting instruments. "I'm trying to teach them to be able to just look at light and appreciate it in all its different forms, from fluorescents to 'magic hour' and anything in-between, and then to be able to learn everything they need to re-create it in some manner," he says. "In my experience with film schools, the students are always saying, 'Why don't we have this equipment, or why don't we have that equipment?' Here's a place where they don't have any excuses."

Notes D'Adamo, "Part of the structure of this school is that we have a mix of Hollywood professionals coming in here. We work with professionals to help them teach, rather than hiring professional teachers. We feel that we are a conservatory, and one of the side effects is that the students get a chance to meet folks who can take them on shoots. Ralf Bode took our advanced cinematography class to his video shoot for the band Smash Mouth. We can't promise anyone a position in this field, because this is not an easy field to jump into, but we'll work hard to get these students connected with people. They have to succeed for us to succeed."

Over the course of the year-long program, students train and shoot films on digital video, 16mm, 35mm and HD using Canon XL1, Arriflex, Panavision and Sony HD cameras. The thesis project can be on a format of choice. Advanced cinematography students, in addition to photographing their own projects, are able to shoot the beginning directors' class projects. "By training their eyes, we try to get them to understand how you break down an aesthetic and how you create mood," D'Adamo explains. "They should know how to light and light quickly. They should know how to conduct themselves as professionals and how to present themselves as an enthusiastic partner on a film. They should learn how to collaborate with a director, but also how to stand somewhat firmly on choices they think are right — to convey why they want them and to back those reasons up."

The L.A. Film School is also working closely with the Mount Company's Hollywood Broadcast Company online webcasting channel. Cinematography students will shoot online content projects that the entertainment company will stream on the Internet. The film school itself is connected to the Internet with multiple T3/DS3 broadband lines.

With its commitment to HD production, the L.A. Film School will be one of the premiere training grounds for the format. Martin Euredjian and his company, ECinema Systems, designed the HD infrastructure and is training students and faculty. The school has a fully loaded HD soundstage/control room and four Sony 24p progressive-scan HD cameras — three HDC750A studio cameras and one HDWF900 Camcorder for location work. "The equipment is very comparable to what a major studio has," Euredjian attests. "From a television standpoint, it's a control room that probably only exists in the major networks." Cites D'Adamo, "We're the first film school to do this, and we have a relationship with Sony as a flagship training center."

Says Euredjian, "We are, as an industry, in a period of transition where the film and electronic worlds are co-mingling and merging a lot more than they used to. I think the most significant aspect of this school is that it's really the first environment where film people and the high-definition world are interacting at a very intimate level. Nobody else is doing that. It does not exist anywhere else in the world."

For more information on the L.A. Film School, phone (323) 860-0789 or fax (323) 634-0044. Web site: www.lafilm.com

The Wizards of *Ozzfest*

by Lucy Nicholson

Grizzled British rock legend Ozzy Osbourne achieved infamy in the early 1980s when, newly fired from his position as lead singer of the definitive heavy-metal band Black Sabbath, he

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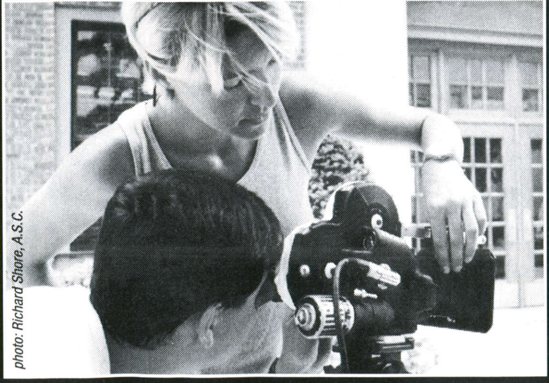

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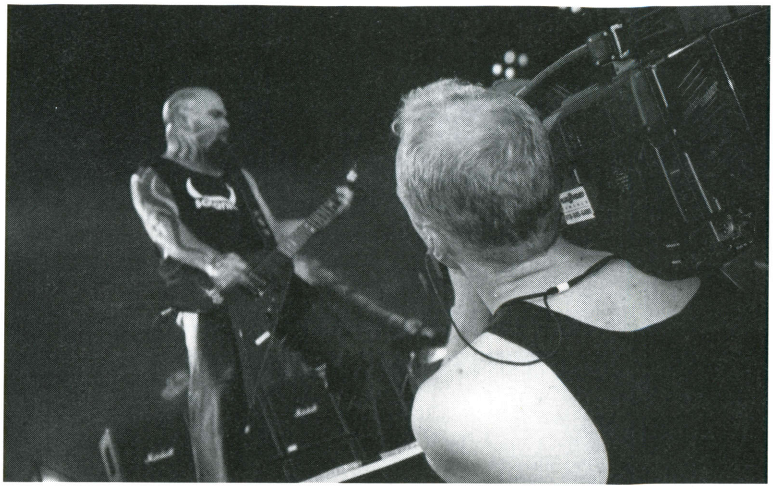

Top: Using a Sony HDW-700HD camera, director of photography Jamie Thompson records the fast fretwork of Slayer guitarist Kerry King. Bottom: The documentary crew takes a break from its rigors in the mosh pit. Pictured from left to right are production assistant Simon Steele, sound technician Susumu Tokonow, producer Abby Binstock, production assistant Sin, director Penelope Spheeris, producer Scott Wilder and gaffer John Joleaud.

Top photo by Susumu Tokonow, bottom photo uncredited.

embarked on a solo tour of the United States, fueled by a diet of booze, pills and even the head of a bat he decapitated onstage. "Mental wounds still bleeding, driving me insane/I'm going off the rails on a crazy train," he sang.

Now sober, sane and fiscally responsible, Ozzy has reteamed with veteran music-scene documentary director Penelope Spheeris (*The Decline of Western Civilization, Parts I, II* and *III, Wayne's World*) for a high-definition (HD) digital video chronicle of last year's *Ozzfest,* his 16-band metal roadshow, which was headlined by a reunited Black Sabbath. Osbourne and Spheeris first collaborated on the latter's 1988 documentary *The Decline of Western Civilization, Part II;* in a kitchen scene, Ozzy hilariously hammed up his rock 'n' roll breakdown by clumsily frying bacon and trembling so much that he poured orange juice and missed the glass.

Spheeris's new, feature-length documentary will go on an innovative tour this month, when it will be digitally projected and interspersed with live performances as an appetizer for Ozzfest 2000. Culled from 120 hours of footage, *Ozzfest,* like the *Decline* series, blends interviews of new and established bands with fan commentaries and band performances. It also focuses on the gypsy-like lives led by the inhabitants of Ozzfest's quirky "Never Never Land" — a carnival section of the concert featuring

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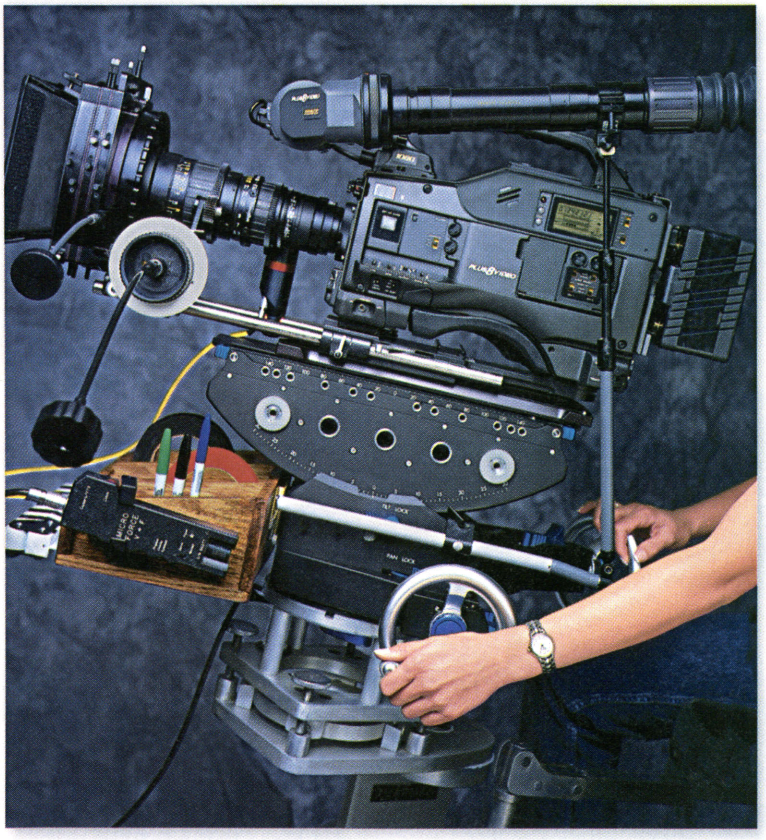

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a mechanical bull ride, tattoo and piercing booths, breast-painting, and vendors selling everything from bondage gear to comic books. The cutting-edge *Ozzfest* portrays fans who have grown old with metal music, which has gradually been replaced by rap as the dominant youth culture.

By choosing to shoot and project her film digitally, Spheeris is blazing a trail with a handful of dramatic film directors (including Mike Figgis, Spike Lee, Gus Van Sant, Steven Soderbergh and Lars von Trier) and an ever-expanding group of documentary filmmakers. She explains, "I'm always looking for ways to expand the horizons of my own work, and I felt that hi-def had a unique, hyper-real quality that seemed to fit the subject matter."

For the grueling shoot of 16-hour days, followed by nights on the tour bus, the director turned to *Decline III* cinematographer Jamie Thompson. Thompson had shot numerous music videos for artists such as Def Leppard and Rod Stewart before moving into the feature realm, where he photographed such films as *Dog Boys* (directed by Ken Russell) and *Freaked*. Thompson, who is currently shooting and producing an HD documentary on Vietnam War helicopter pilots, shot all of *Ozzfest* but the final week, when Jeff DeVuono and Angel Colmenares took over. "Penelope had worked in a documentary situation with me, so we had that communication built in," Thompson explains. "Once the bands are playing, you can't communicate with each other [because] it's so incredibly loud. We'd talk about the sequence of shots before it all started, and once the music began, we really just used a lot of hand signals. It's also very easy to get separated in a crowd of 20,000 people!"

To convince themselves that HD was the right medium — and to persuade Sharon Osbourne, the film's executive producer and Ozzy's wife and manager, of its benefits over cheaper media — Spheeris and Thompson shot and projected tests before going on the road. "I knew how good HD could look, but I also wanted to know how transvideo®

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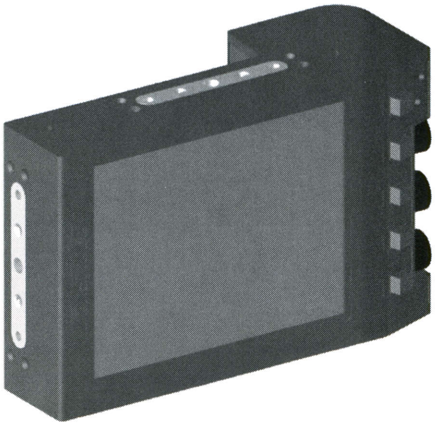

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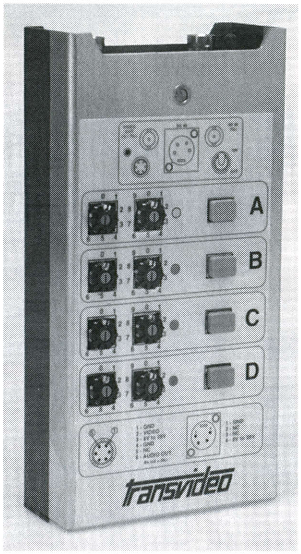

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potentially bad it could look," reveals Thompson. "There hasn't been much shot on HD. We saw a lot of film/video side-by-side comparisons, mostly shot under controlled circumstances, and I'm always a bit skeptical about those because when you go to someplace like Sony, of course they're going to show you the best. That's why, when we did our tests, we only wanted the worst-case scenarios.

"We shot on HD, Mini-DV, Hi-8 and Digital Betacam, and we'd go out when the sun was overhead, shoot 360 degrees and come from outside to inside, because we knew when we got out there we'd have no control. Looking at the tests [projected at the WGA theater, with the other media converted to HD], HD looked amazing, pretty close to 16mm. Hi-8 looked embarrassing, Digital Betacam didn't look as good as I was expecting, and Mini-DV looked amazing. It didn't look the same as HD, and it wasn't as sharp, but it had a really nice look. I always like to mix media, and we felt quite confident incorporating a lot of Mini-DV footage with the HD footage."

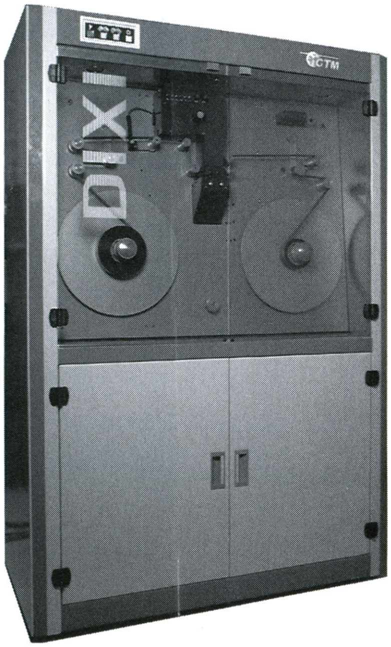
Thompson knew that dismantling film-projection equipment every night after the show would be fraught with problems, so he was aware that no matter how he chose to photograph the film, it would have to be projected on video. "We were concerned that the technology hadn't quite gotten to the right level," he admits. "But then we realized that there are [portable] projectors that are not film-related — like the HD projectors in Las Vegas advertising the new Lincoln automobile, for example. Also, that was eight months ago; even the projector guys told us that in a year, all of that stuff would be redundant. It was a leap of faith — we'll assume that technology will get better, [and] I believe it has."

The film's HD look gives a fresh perspective to concertgoers who have become too familiar with Ozzfest's sights of drunken revelry. "HD is breathtaking!" exclaims Spheeris. "I don't think I'll ever forget how I felt the first moment I looked at a 50-foot screen with a hi-def image on it. As a filmmaker, it changed my world — it has infinite focus, and the color is so vibrant. At Ozzfest, I shot an audience at sunset, and the guy in the foreground and all of the other 50,000 people up to the stage were in focus. It was like being on acid!"

Thompson adds, "I know the new [Kodak] Vision print stock has helped a lot, but when you're looking at film projected, black is a dark shade of gray — it ain't black. With HD, it *is* black, jet black. Colors are very saturated, very poppy — especially the red spectrum — although it's the clarity more than the color that's unique. The film's mood was created by the environment rather than by us imposing our mood on it. Film can take you to a fantasyland, but when you're capturing reality, there really is something about the indisputable immediacy that video has. I think the whole 'video is going to replace film' debate is ridiculous; it's like saying oils are going to replace watercolors."

To lend their project some different flavors, the filmmakers took one Sony HDW-700 HD camera with two Fujinon HD zoom lenses (5.2-52mm and 7.5-150mm) and two Sony VX900 & VX1000 Mini-DV cameras to two weeks of concerts on the East Coast, and two HD cameras to a couple of concerts on the West Coast. (A separate crew filmed the West Coast performances with eight HD cameras; all of the equipment was rented from New York's Plus8 Video) Thompson handheld the HD camera, while Spheeris and other crew members shot simultaneously or went on a voyage with the Mini-DVs. "We had to move really fast, and we couldn't stop anything, so we just had to grab footage on the fly," Thompson recalls. "That's where the HD camera was great.

"One time, I ran along with Primus as they finished performing, filming continuously. I started the shot from the audience's perspective in front of the stage. As the band finished, I jumped up on the stage, going from daylight to mixed day/stage lighting; I followed the musicians through the back of the stage, where it got very dark, [then] outside again briefly into daylight,



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then through a fluorescent-lit hallway to their fluorescent/daylight-mixed green room. I started off in front of them, then I let them pass me so I could follow; they were running so fast that there was no way I could keep running backwards and stepping over cables. As soon as the band finished, the road crew came in and started clearing gear in the opposite direction, so we had people pushing drum kits and amplifiers at us as we were dodging and weaving.

"That sequence presents a really great perspective on the rock world [and] what happens immediately after a performance. There's an amazing energy: the band members are exhausted, they're excited, they're pumped up. We went from a T2 to a T8/11 split, and in that situation, you really can just throw the camera on auto-aperture. I didn't choose to most of the time, but this was a perfect situation for it. As we went through, I could also just flick through the color wheel behind the lens [which has clear, 85, 85ND3, 85ND6, straight ND and color-balance filters]. I'd notice a bit of a jump, but that was appropriate for the type of project it was. You also have two pre-sets — built-in color-temperature memories — and if you're in a fluorescent hallway, you can color-balance one of the pre-sets and then go back to the daylight. Right near your thumb, you can click the switch from daylight to fluorescent and back, and that change is electronic; you don't notice it. You just couldn't do that on film and have an acceptable balance all the way through."

Thompson lit to achieve exposure and to fine-tune the mood. He used a Lowel tungsten location kit and two battery-powered, 200-watt HMI SunGuns. "One of my big discoveries was that HD is not as good in low light as advertised," he reports. "You can shoot in low light, but it needs a pretty decent stop; otherwise, it starts falling apart. The darkest times we shot were right after the concert, when all the lights died down and we were shooting the audience leaving under streetlights in the car park. I had to push in all the way on the gain — I guess it would be equivalent to 600-800 ISO, but a lot noisier than film at that level. It probably had the same sort of grain structure as 16mm, but it was noise. I like a grainy image on film because it adds texture, but noise on HD looks artificial and just gets in the way.

"I was impressed with how HD handled the concert lighting," he continues, "but it does have a narrower contrast range than film. It has roughly four or five stops of latitude, and you really feel it in the highlights. For instance, there were a lot of pyrotechnics, and every time a flash pop would go off, the whole screen would pop for an instant; on film, you would've seen the edges of those fireballs."

The cameraman laughs when asked to talk about camera movement. "There was a huge concert in West Virginia, probably 15,000 people, and it was raining. Behind the seating area,

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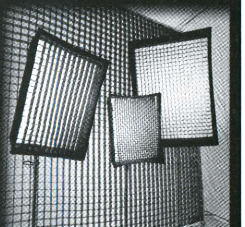

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there was a 40-foot-high hill where the grass had completely turned to mud, and people started sliding down the hill. Groups of about 50 people would grab onto each other and just go sliding down. It was pretty steep, about 45 degrees. I stood at the bottom and started shooting, then thought, 'Uh, no, I've got to get up there,' so I dragged myself up to the top. Once I got there, I was dragged down again several times. There was one time when I thought I was going to lose the camera — I could feel it being taken out of my hands!"

Telluride Film Festival

Submissions to the 2000 Telluride Film Festival will be accepted from May 15 to July 15. The festivities will take place over Labor Day weekend, and the festival is open to professional and nonprofessional filmmakers working in all feature-length and short forms. In order to qualify, all works must be new and must remain unseen by the public until the festival.

The selected short films will play either with a feature film or as part of three special programs featuring the works of emerging artists. All films submitted may originate on 35mm, 16mm or video, and will be exhibited in the chosen format.

For further information and an entry application, contact the Telluride Film Festival office at (603) 433-9202; fax (603) 433-9206, or e-mail: tellufilm@aol.com. You can also visit the Web site: www.telluridefilmfestival.com.

X-treme Tube Film Festival

The inaugural Tube Film Festival, scheduled for August 20-21 and presented by ESPN and EXPN.com, has announced a worldwide call for submissions of sports films and videos. The Sixth Annual X Games in downtown San Francisco will host the festival.

In keeping with the vision and spirit of the X Games activities, the festival will reflect the culture of today's action sports community, the creative souls of its contributors and the originality that surrounds them. Filmmakers are asked to submit a short trailer for their films, which will be posted on the EXPN.com Web site. Visitors to the site will be able to view the trailers and vote for their favorite films, and the top selections will be screened at the festival.

Tube also seeks to include film and video works that capture not only the visual elements of these sports, but also the emotional and human aspects. Audience, jury, best animation and best overall film awards will be given.

Submissions must be no longer than 30 minutes and should be connected to the action sports world from which it originates. Trailers must be included and must be no longer than two minutes. Entry is free and the deadline is June 1.

For more information and applications, call (415) 782-8504 or visit www.EXPN.com. ■

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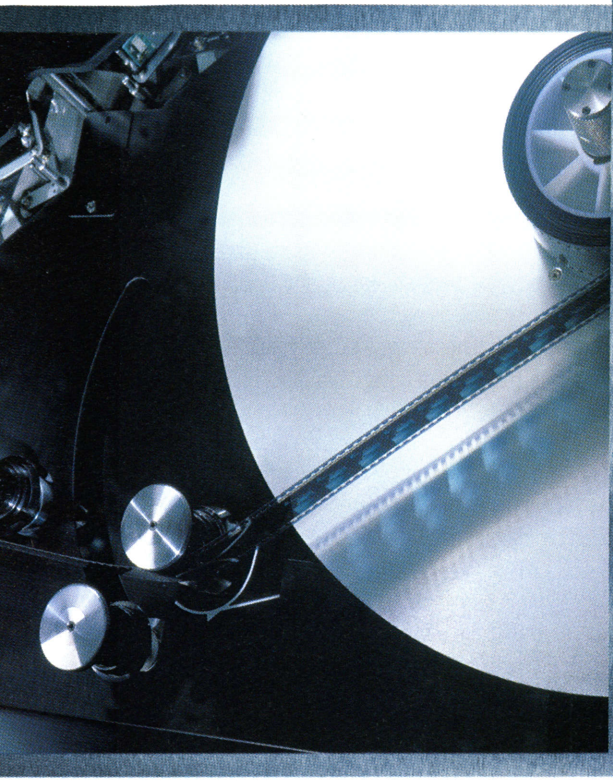

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Satanic Verses

Roman Polanski and Darius Khondji, ASC, AFC, conjure up a devilish mystery set in the world of rare books.

by Chris Pizzello

Unit photography by Peter Mountain

Roman Polanski's new thriller, *The Ninth Gate*, opens in darkness to the scratchy sound of a pen scribbling on paper. As the picture fades in, we see an elderly man writing a note at an ornate desk, amid the elegant trappings of a stately, private library lined wall-to-wall with dusty tomes. With slow deliberation, the camera dollies back from the desk, pans left and tilts down, where it lingers curiously upon a footstool placed rather incongruously in the middle of the dimly lit room. After a pregnant pause, the camera tilts up toward the ceiling to reveal the sequence's brilliantly morbid payoff: an ominous shot of a homemade noose dangling above the footstool. In an instant, the serene, book-filled sanctuary has been transformed into the lurid setting of an imminent suicide.

With nary a word of dialogue or even a single edit, Polanski has effortlessly piqued the audience's curiosity about the forthcoming tale — and reminded us of the sheer pleasure of first-rate cinema. "That opening scene is pure Roman," attests the film's cinematographer, Darius Khondji, ASC, AFC. "He lined up the whole scene without any [narrative] interference or compromise. For me, that shot is very representative of Roman's sensibility. His filmmaking is beautiful and classical, but at the same time, it's twisted!"

Based on Arturo Perez-Reverte's novel *The Club Dumas*, *The Ninth Gate* trails unscrupulous New York book appraiser Dean Corso (Johnny Depp) across Europe, after he is commissioned by wealthy collector Boris Balkan (Frank Langella) to track down and secure the two other existing copies of a mysterious, 17th-century text that can reputedly be used to conjure up Satan. While carrying out his mission, Corso encounters a succes-

Photos courtesy of Artisan Entertainment.

sion of the inimitable eccentrics and deviants who inhabit many of Polanski's films — from wealthy devil-worshippers to ill-tempered secretaries to an enigmatic French beauty (known only as The Girl, and played by Polanski's real-life wife, Emmanuelle Seigner) who seems to anticipate Corso's every move.

A sly cross between two of Polanski's undisputed classics, *Rosemary's Baby* (1968) and *Chinatown* (1974), *The Ninth Gate* blends horror with an abundance of the director's mordant wit. The film also explores one of Polanski's perennial themes: the ubiquity of evil, and the disturbing ease with which one can fall prey to its temptations.

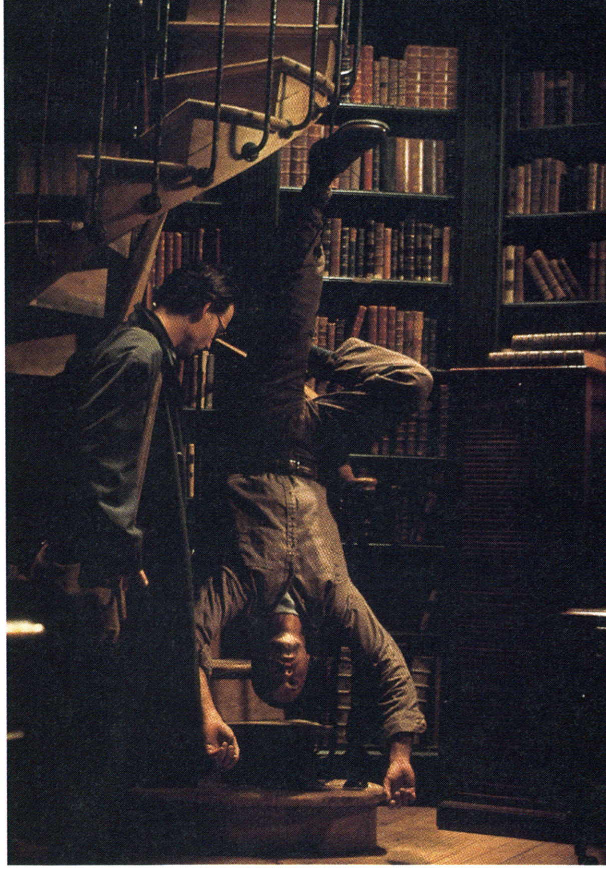
For the highly influential and much-sought-after Khondji, *The Ninth Gate* offered the chance to collaborate with one of the world's most respected cinematic stylists and to tackle a film genre he has long held dear. "Roman is one of the true originals of cinema," he states. "Also, I've always wanted to make a movie with a witchcraft or supernatural subtext — I love those kinds of stories. Roman is obviously one of the best directors in the world to work with in that genre."

When reading a script, Khondji waits for what he has referred to in past interviews as "The Big Bang" — a strong first impression of a film that inspires his ideas about the cinematography. "When I read *The Ninth Gate,* my initial images of the story were mixed," he describes. "It starts out as a dark, urban film in America and then travels to Europe, so there's a balance of the two continents. I thought of it as a modern story, but at the same time as a very old, classical film about books. I saw Dean Corso as a character who could be in a Jean-Pierre Melville film — uncompromising, with ice-cold eyes. He's also very cynical, like the main character of Melville's *Le Samourai.* In interpreting the cinematography of a film, I always try to enter into the story through the eyes of the main character."

While hunting for visual inspirations during preproduction, Polanski and Khondji found themselves hard-pressed to unearth many films set in the hermetic world of antiquarian book dealers, so the duo instead referenced similarly themed pictures. "Roman kept reminding me about *Touch of Evil* by Orson Welles," Khondji says. "We watched that film together, and we both liked its sense of darkness; we decided that that feeling was one side of *The Ninth Gate.* I also watched all of Roman's films again; when we started working on the film, some of his ideas for camera movement reminded me very much of *Rosemary's Baby.* There was also a bit of *The Name of the Rose* in the story — a mystery amid the world of books. I thought that was a fascinating world in which to set a film."

Khondji expounds at length when asked about the visual philosophies that distinguish Polanski from the other high-profile directors he's worked with so far, among them Danny Boyle (*The Beach,* see *AC* Feb. '00), Jean-Pierre Jeunet (*Delicatessen, City of Lost Children, Alien: Resurrection;* see coverage of the latter film in *AC* Nov. '97), Alan Parker (*Evita,* see *AC* Jan. '97), Bernardo Bertolucci (*Stealing Beauty,* see *AC* June '96), David Fincher (*Seven,* see *AC* Oct. '95) and Neil Jordan (*In Dreams*). "I feel that as both a cameraman and a person, I'm somehow different since working with Roman," he says. "It's not even very clear what I learned from working with him, but I find that I don't line up shots the same way I used to! Roman has very acute, very sharp eyes in terms of things like camera angles. I never got the chance to work with Stanley Kubrick, but I often thought that collaborating with Roman must be similar, because he has that same kind of taste and approach. Roman has a very methodical, scrupulous way of filming things — every single detail in the frame is equally important to him."

To illustrate his point, Khondji points to the cluttered coffee table in the West Hollywood hotel suite where he's being interviewed. "To Roman, the position of every magazine on this table would be important," he asserts. "You couldn't just throw the magazines anywhere. There would be a reason why that particular magazine is over there in that particular place. Everything has not only a visual reason, but a narrative reason."

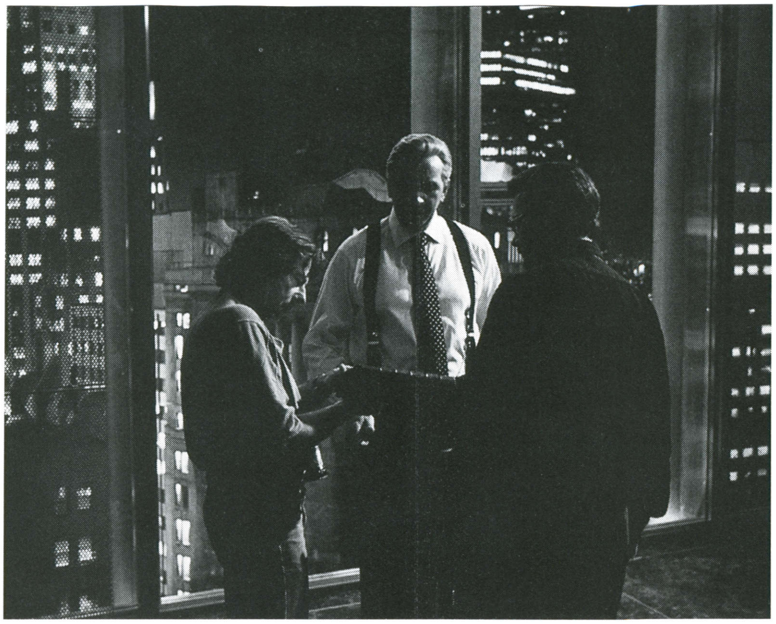


Opposite: Book appraiser Dean Corso (Johnny Depp) riffles the pages of a rare tome that may or may not have the power to summon up Satan.
This page: As his quest continues, Corso confronts the corpse of his business partner, Bernie (James Russo), whose ritualistic murder recalls an illustration from the infamous 17th-century text.

The cinematographer also singles out gaffer Jean Claude Lebras, grip Bernard Bregier and first assistant director Michka Cheyko for doing "incredible" jobs and helping him a great deal on *The Ninth Gate.* Khondji adds, "Working with [production designer] Dean Tavoularis made me think that the words 'genius' and 'humble' can go well together."

A subtle but extremely important factor in the primal grip

Polanski's thrillers exercise on audiences is the director's insistence on visual consistency throughout a film. *Rosemary's Baby*, shot entirely with 18mm and 25mm lenses, puts the audience right on top of Mia Farrow's character from beginning to end, making her paranoia palpable. "When you prepare a film with Roman, he always talks about the distance between the camera and the actors," Khondji adds. "This is *very* important to him. Even if you change lenses and go from a wide shot to a tight shot, he wants to keep the same distance between the camera lens and the actor."



Right: Polanski (at left) briefs actors Frank Langella and Depp on their next exchange of dialogue. A high-quality TransLite simulated the Manhattan skyline in the scene, which was actually shot on a set in Paris. Below: Khondji meters the light on Depp in Sintra, Portugal.

Polanski opted for a similar intimacy with the actors on *The Ninth Gate*. "Roman favored wide angles, but never to the point of becoming grotesque," Khondji says. "Not that Roman is afraid of grotesque distortion — he sometimes will use it for a certain effect. But we used the 32 and 25mm lenses for almost the whole show, except for some close-ups that we shot with a 75."

Khondji admits that attempting to change the mind of a director as confident as Polanski sometimes requires a Mephistophelian feat of persuasion. "It's difficult to make him alter his ideas completely, because he has such a measured way of seeing things," he explains. "Of course, he also gets inspiration during the day on location or on the set. When you work with him closely, you can tell that his methods always have a narrative [underpinning]; he doesn't film things just for aesthetic purposes. You can sometimes get him to change shots a little bit, but never drastically, or else you'll make him unhappy! Roman is also very inspirational when it comes to lighting, because he really *feels* the movie. He's instinctive about the sets and the way a scene should be lit. We rarely had discussions about lighting — I just lit the movie the way I thought would be right, and I'd only talk to him if I had some doubt about some aspect of the story."

The Ninth Gate was filmed entirely at European locations, like all of Polanski's movies since *The Tenant* (1976). This created an interesting challenge during the filming of the picture's first act, which takes place in New York but was actually shot in Paris. To achieve the proper Manhattan flavor, the filmmakers relied upon background slides provided by Tavoularis's team. In one particularly convincing sequence, Corso is led to Balkan's eerie, secret library, where a nocturnal New York skyline glistens behind a huge window. "That scene had an interesting mix of the very modern glass buildings in the background with the antique books of the past," Khondji describes. "I loved that [dichotomy]. The books were almost like animals hidden in a nest. In the middle of the city at night, we see this man with his books; I really saw it as a scary thing, so we used a lot of underkeyed toplight provided entirely by Kino Flos. For the New York skyline behind the actors, Dean's team provided a very good-quality slide from America [from which a TransLite was fashioned]. Most of our work was already accomplished by the high quality of the slide, but we also lit the TransLite very carefully and used a little net [diffusion]. In postproduction, some movement was also added to the lights."

Corso and his partner, Bernie (James Russo), share a cluttered mid-Manhattan bookstore which, interestingly, is set below street level. Khondji lent the space a powerfully musty atmosphere, as if this haven of old literature was somehow disengaged from the modern world represented by the hustling pairs of legs darting past the store's windows. "The look of the books was already pretty much taken care of through Dean Tavoularis's sets," Khondji says. "We used a mixture of Kino Flos around the bookstore. I used very,

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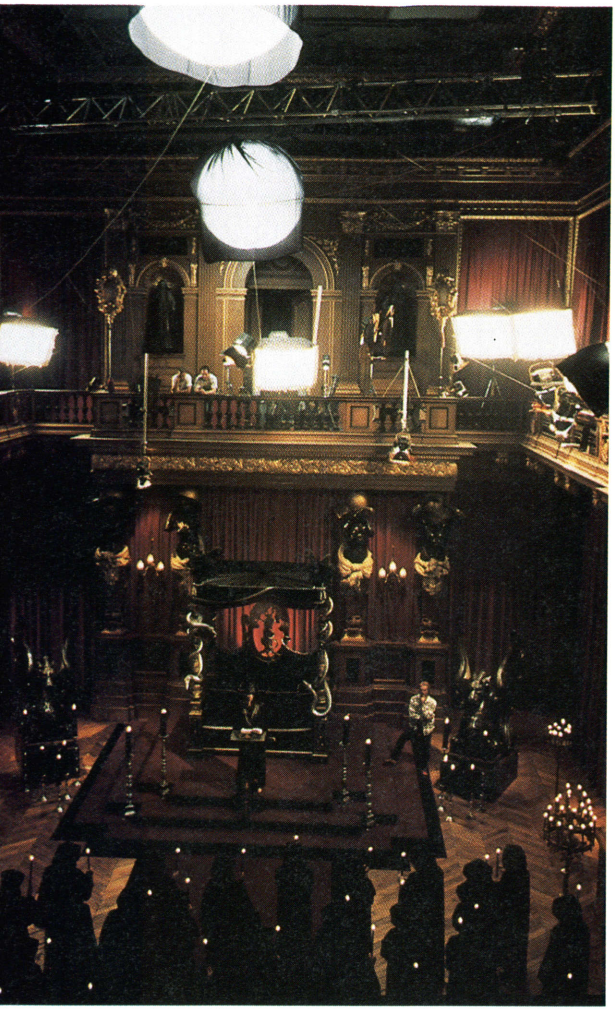

The grand interior of a castle serves as the site of an elaborate Satanic rite. Khondji lit the space with an array of soft toplights, including China balls and helium balloons (not pictured here). He notes that "the balloons gave off a slightly cool, underkeyed toplight. We used the balcony for straight, simple backlighting of the worshippers. All of the red effects in the scene came from the China balls."

very little smoke and combined that with the Arriflex VariCon on-camera flashing device during the shooting.

"[The French lab] Eclair has the European equivalent of Technicolor's ENR printing process, which they call NEC [Noir en Colour] which translates to 'Black-and-White in Color,'" the cinematographer adds. "It's a beautifully subtle process with exactly the same principle as ENR, and we applied it throughout this film. We photographed the picture with the new Cooke S4 Series lenses, beautiful English lenses that have a slightly soft, sensual look — they're very good with color and skin tone. They also have all of the modern lens qualities, such as anti-flare. *The Ninth Gate* was one of the first movies photographed entirely with these lenses. The look of the scenes is therefore due to the combination of these lenses with the NEC process."

Polanski has always had a keen understanding of the precise moments in a story to introduce camera movement. In *The Ninth Gate*, the director adopts an appropriately jerky, handheld style when Corso returns to the bookstore at night and makes a horrifying discovery involving his partner. "Roman is not very fond of Steadicam," Khondji says. "I think it's overused in movies right now, although there are certain movies in which it is integral to the camerawork, like *The Thin Red Line*. John Toll's cinematography on that film was fantastic, and the use of the Steadicam is vital to the story. But whatever the type of camera movement, I believe it has to come somehow from the director. Whether a director has a lot of experience or very little, the energy of the camera is always generated by his vision of the story. This is a very important idea that only came to me after years of experience."

Khondji's standard camera package handled all of his needs on the shoot. "I always use a main studio camera along with something lightweight," he says. "On this film, the main studio camera was the Arri 535, combined with a Moviecam SL for handheld work. For the lightweight camera, I always use either an Aaton or the SL — they're both great cameras."

When Corso expands his book-sleuthing into the old worlds of Spain and Portugal, the film takes on a startlingly different feel from the busy urban look of the New York scenes. "In Spain, we wanted to feel the heat and the contrast of the sun," Khondji explains. "I've always had different feelings toward those two countries — to me, Spain is more rich, gold and joyous, while Portugal is more cold, blue and dark, with a lack of light. We shot in Sintra, Portugal, which reminded me of Paris. It's a very mysterious place on the outskirts of town, surrounded by eucalyptus trees and old castles."

Khondji used no lighting augmentation at all for a striking, sun-bleached shot in which Corso searches for an antique bookstore down a narrow street in Toledo, Spain. "More and more, I just prefer to use the real daylight," he comments. "I use the skylight as a toplight, then negative fill to create contrast. For me, this is much more effective than using artificial light."

The cinematographer used Kodak stocks for the entire production, employing the 50 ASA EXR 5245 for daylight scenes, Vision 320T 5277 for nights and interiors and Vision 320T 5248 for overcast weather. "I always remember film stocks more than anything, because each film stock has a meaning for me," Khondji says. "About 95 percent of what I shoot is on Kodak, since I know those stocks quite well. Even if they come out with a stock I don't like, I can express my concerns with them, much like I do with Brian Newman, the head of Cooke lenses. They're very warm with cameramen."

When Corso finally locates the Spanish bookshop, he is bemused to discover that its owners are elderly twins — but the sharp-eyed viewer will notice something oddly symmetrical about the scene. "The owners are the same guy doubled," Khondji reveals with a smile. "We used motion control to shoot the scene. I started experimenting with that technique on *City of Lost Children* to create clones, and we basically did the same thing with the Duboi effects house in Paris. Roman could have found twins, but I've learned to recognize when directors become *obsessed*. It's always a positive thing, never negative. The obsession can take the form of lighting, set dressing, the way a certain actor does something. Roman noticed this Spanish production coordinator

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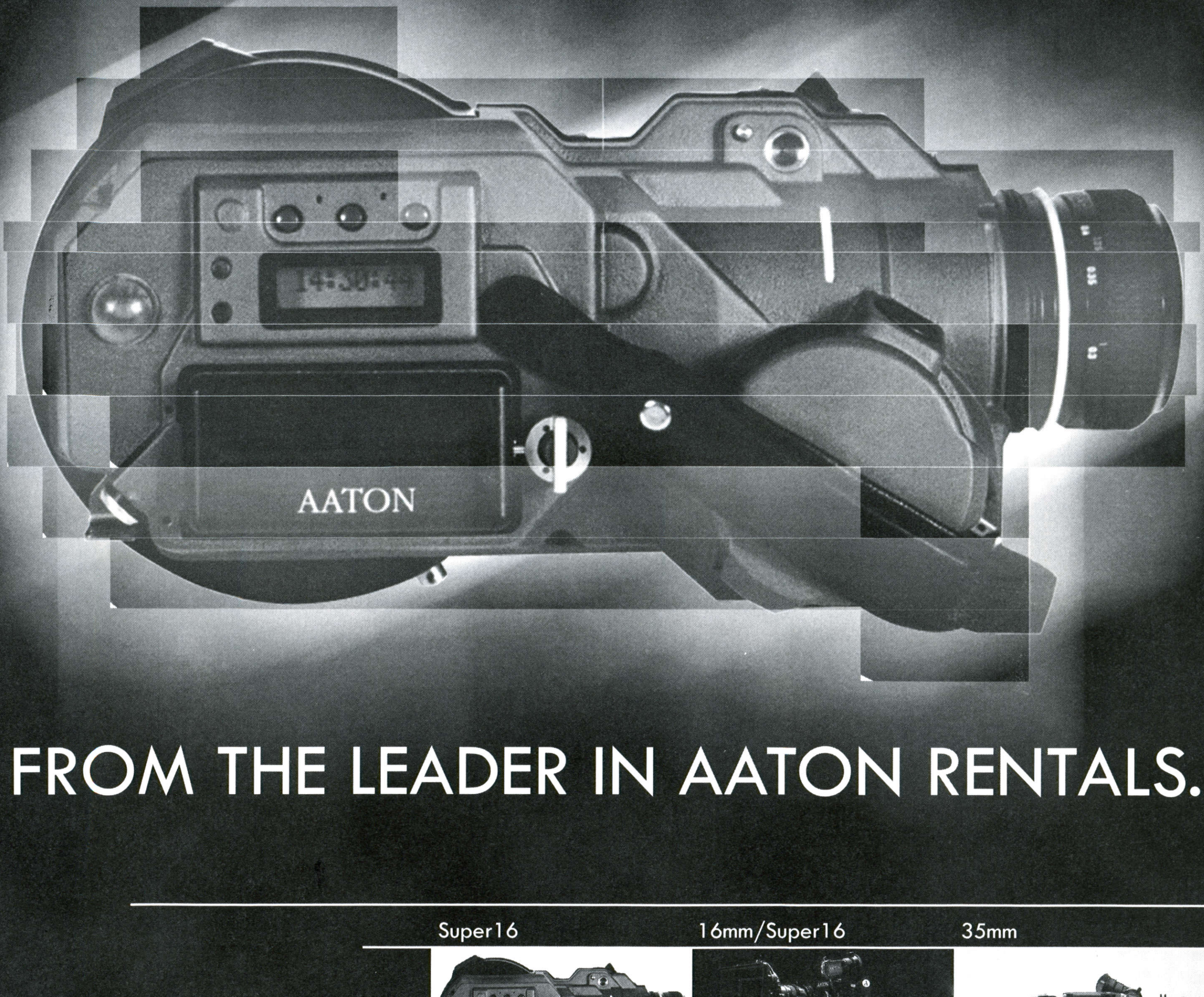

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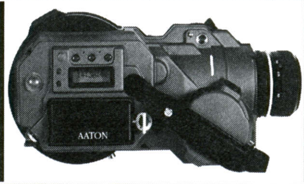

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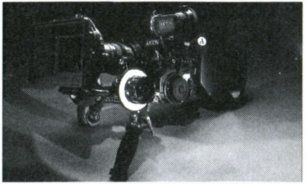

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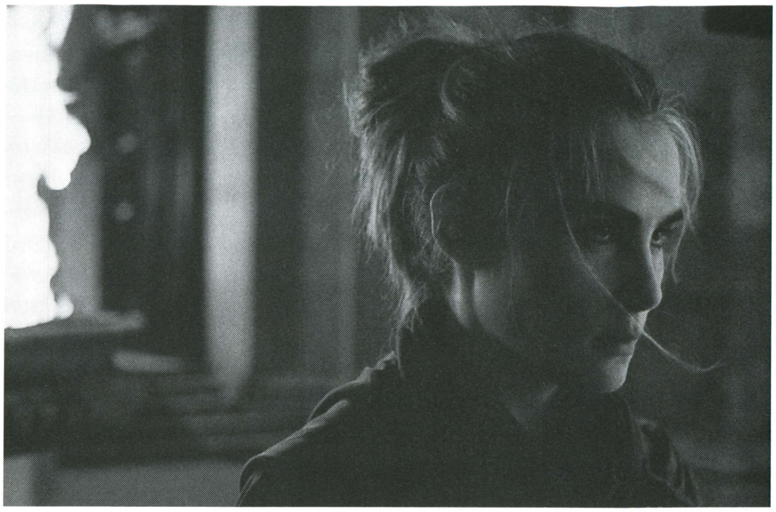

Above: The Girl (Emmanuelle Seigner) stokes Corso's libido as she guides him on his quest. Below: The camera crew captures Depp in a moment of blazing passion.

named Jose Lopez Rodero, and he began giving him strange looks. He'd walk around him and say, 'Oh, *you* could do the scene.' Jose told Roman he didn't have a twin, adding that he surely would need one for the scene. But Roman liked his face. The more he looked at him, the more he believed this was the face he needed in his film! It was a joke at first — the guy didn't even want to do it, and our producer was skeptical. But it went on and on until we ended up actually doing the scene with motion control!"

Polanski's fondness for classic movie effects is manifested in a scene set on a train, in which Corso finally confronts The Girl, who has been shadowing him throughout Europe. Lights from outside the train wash over their faces as Corso's reflection (created in post) flickers on a window. "Outside the set, we had a huge drum made, because I needed the effect of lights crossing outside a speeding train," Khondji explains. "The drum was made out of slices of different mirrors. We put an HMI light on rollers, made it spin, then pointed it into the drum. It's a very old technique, but Roman loves things like that. He's very skillful and talented — he could do any job on the set, be it camera operator, cinematographer or designer. He reads *Scientific American* and is very good with technology. If he needed a very

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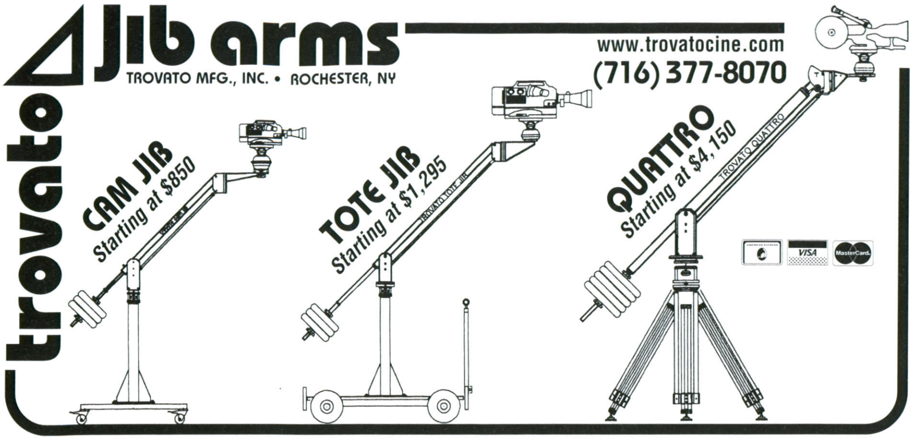

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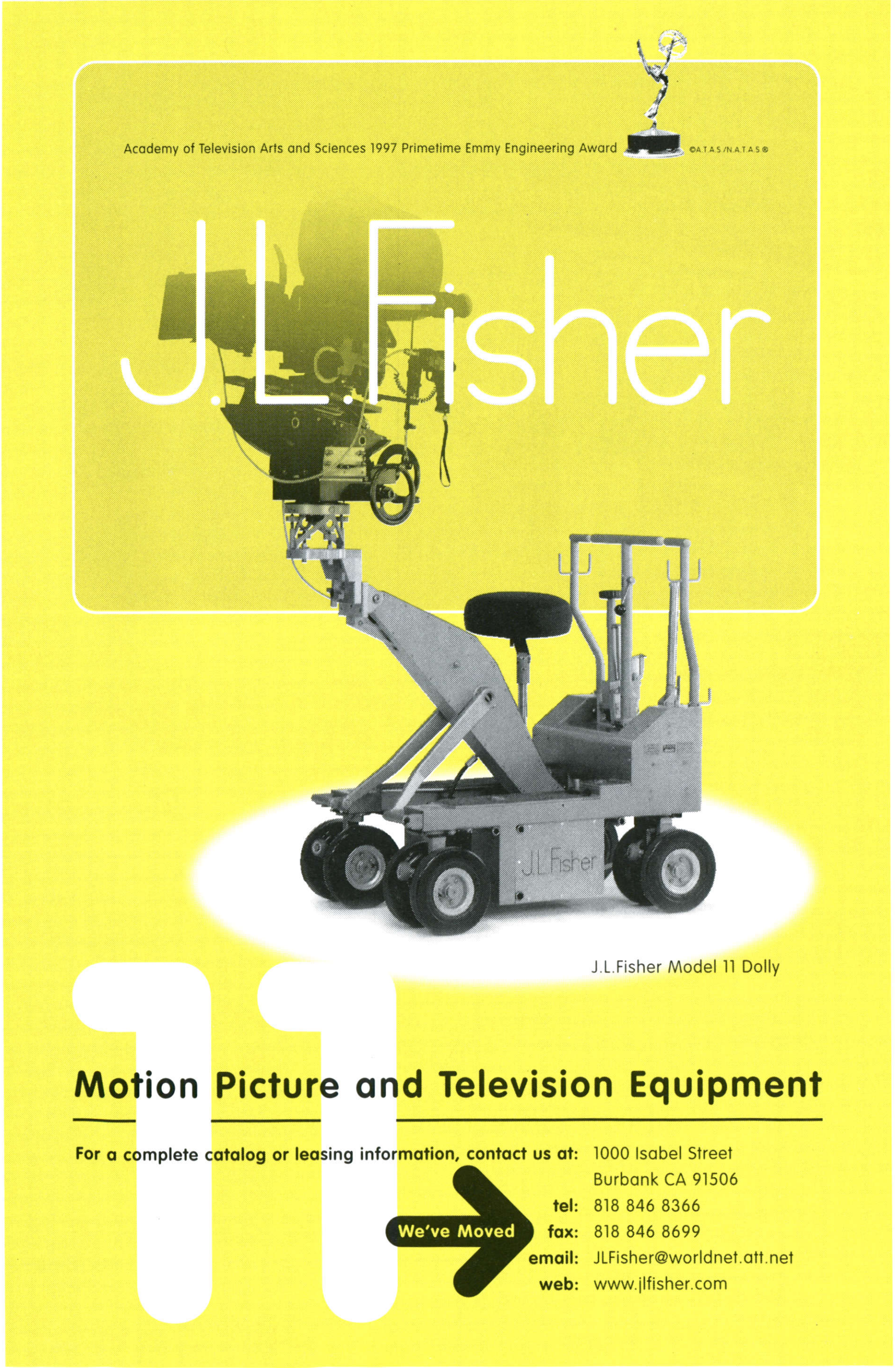

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complicated lighting rig, he would find a way to do it himself. He's very much into the new techniques, but he really loves the old tricks as well."

Throughout the film, Khondji subtly augments the story's satanic overtones in his lighting of Depp. The actor is nearly always lent a warm, slightly reddish glow, even in otherwise cool scenes. The actor is also groomed in appropriately devilish fashion, sporting both an earring and a goatee. "I always take quite a bit of time before the film just to learn how to photograph the star," Khondji says. "I start with photographs, and then I watch films starring that particular actor, just to see how his face handles different ambiances and angles of light. I need to see how he takes low light, how he takes very bright light, what direct sunlight will do to his face, how much light his face will bounce back with reflective light. Eventually you see a direction to take with the actor. I also had to take into account that Johnny was playing a character with two sides. We present the Dean Corso character as very ambiguous. He definitely has a dark, cold side, but at the same time there's a side of him we don't know about, so it was a simple decision to half-light him throughout the movie with some CTO, CTS or other warm diffusion on the fixtures. For me, the most important thing is the direction of the beam of light to a face, a scene or a landscape."

Focus puller Eric Bialas's skills were put to the test for one of Polanski's trademark subjective angles, when Corso is knocked unconscious from behind while examining a possible copy of Balkan's text in the office of a Parisian baroness. Bialas maintained perfect focus on the words, even the letters, of the page as the camera swerved right into the book. "Eric is an amazing focus puller," Khondji says. "We used a combination of a dolly and a Dutch head, on which we moved an Arriflex 535. It was purely Roman's

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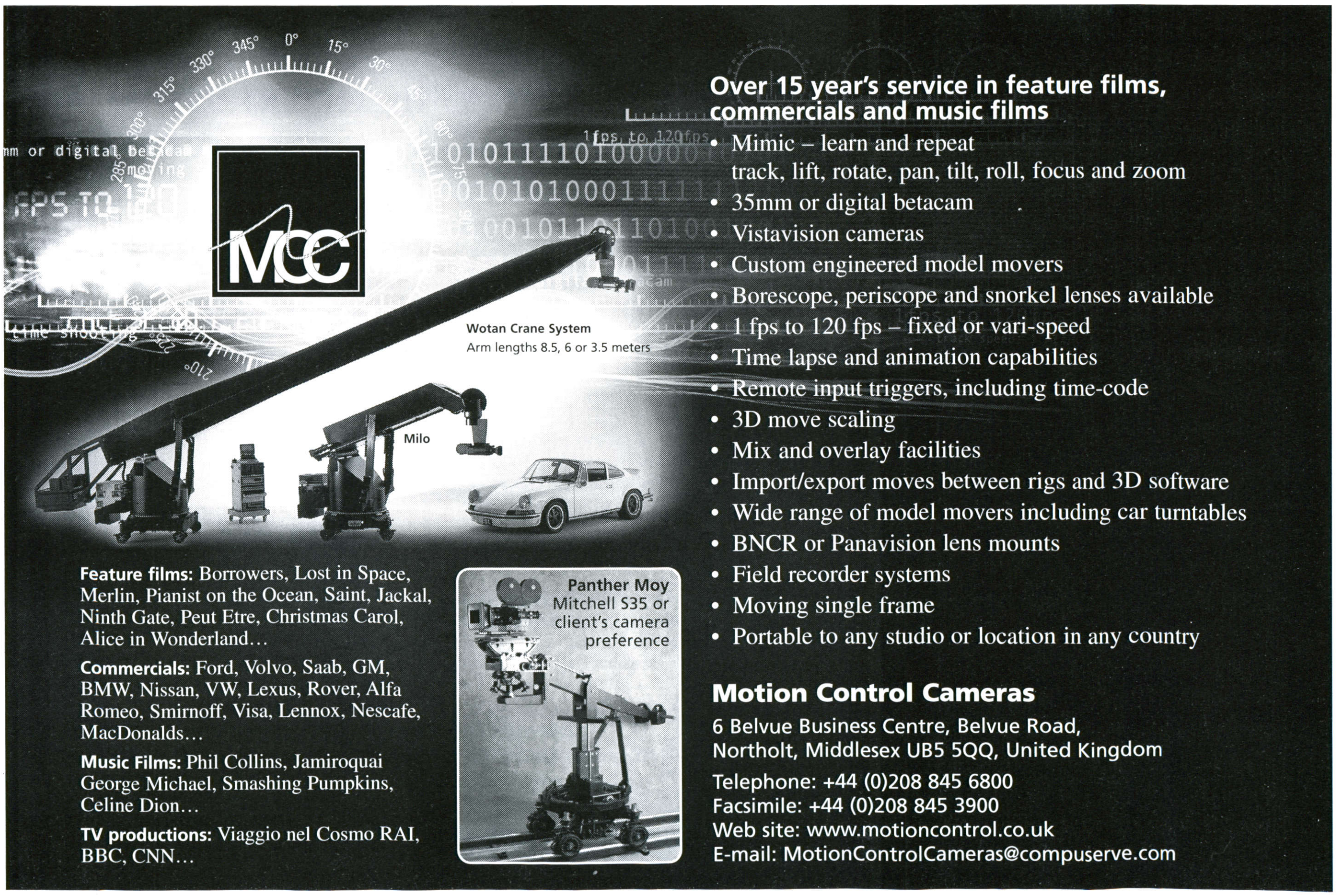
Balkan prays to his Master as a helpless Corso finds himself in a bit of a hole.

idea — as far as shots go, he knows exactly what he wants."

Corso awakens to the bizarre sight of the murdered, wheelchair-bound baroness rolling helplessly toward her front office, which is inexplicably engulfed in flames. "Inside the front office, I used several China balls with 2Ks and 5Ks inside them, all fitted with full CTO," Khondji recalls. "I put them all on dimmers, and when the actress rolled through the door, I blasted the set with the very red light from the China balls. I also had a physical effects person on the set who lit up flame bars for some added fire effects."

Corso's investigations eventually lead him to a nocturnal gathering of occult worshippers inside a huge castle in northeast Paris. With participants in black robes chanting strange incantations, the scene's overall aura of decadence gave Khondji a strange sense of verisimilitude when he viewed Stanley Kubrick's final film. "I was amazed when I saw *Eyes Wide Shut*," he laughs. "The orgy scene in that film was very close to what we were doing! But Roman, of course, takes a lighter tone than Kubrick. He constantly plays on the grotesque, comedic aspect of witchcraft, as well as the scariness. The better his work, the more there is of this mixture of the serious and the funny. The castle was a very difficult location because there was almost no place to light — it was a huge space with a big balcony all around it. We ended up lighting the whole room with helium balloons, which gave off a slightly cool, under-keyed toplight. We used the balcony for straight, simple backlighting of the worshippers. All of the red effects in the scene came from several China lights."

As Corso closes in on the truth, the look of the film becomes progressively more baroque. Thanks to an unexpected assist from Mother Nature, a simple transitional scene of Corso hitching a ride with a herd of sheep through the French countryside was transformed into cinematic gold. "It had been raining and we just happened to capture a fantastic rainbow," he says. "It was nothing more than an accident. These days, I'm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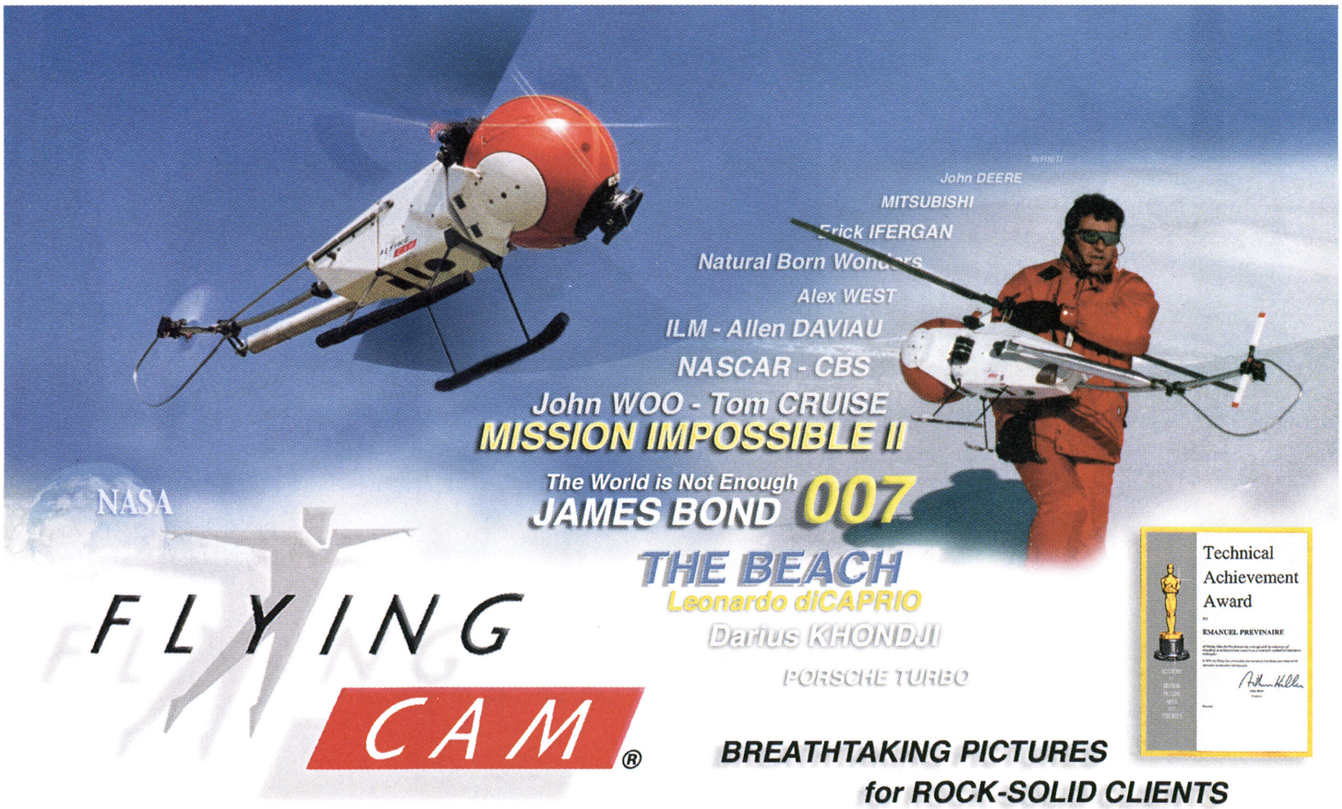
sure that many people are going to think it was a special effect!"

The film's final, nocturnal confrontation between Corso and Balkan was staged at still another breathtaking castle in southwest France. "It was an incredibly haunted-looking place," Khondji recalls. "We used a lot of the red China lights for the warm look of fire inside. For the exterior, we used a crane with two Dino lights. I used straight 3200K tungsten light with no blue filtration whatsoever. I like my night scenes to be very dark, with a silvery white quality of light. I don't like blue at all for nights, although there are a lot of really good cameramen who still use it. Their night scenes are often very beautiful, but where is this blue streak of light coming from? Maybe it's a question of the stylization of the night, but when I look out the window at night, I see lights, silhouettes of trees and pools of color — I don't see any blue."

Polanski's high-wire balance of horror and humor reaches its apex in an amusingly over-the-top, outdoor tryst between Corso and The Girl as the castle is engulfed in flames in the background. With the camera a substantial distance away from the actors, Khondji was forced to cleverly camouflage his lighting. "We hid several China lights very well behind rocks to illuminate the actors with warm light," he explains. "The rest was done with a crane and two Dino lights on the castle. I used these huge lights, but they're hardly readable in the finished film. I just see nights as very dark. I feel that 90 percent of the night scenes I see in movies are overlit."

Khondji's less-is-more attitude about night scenes mirrors his current approach toward cinematography in general. "The older I get, the more I simplify and purify," he states. "Every time I do something that is a bit too complicated, I'm unhappy. Usually I'm frustrated with myself when I put up too many lights." ■

Overwhelmed by his burning devotion to the Devil, Balkan adds fuel to the fire.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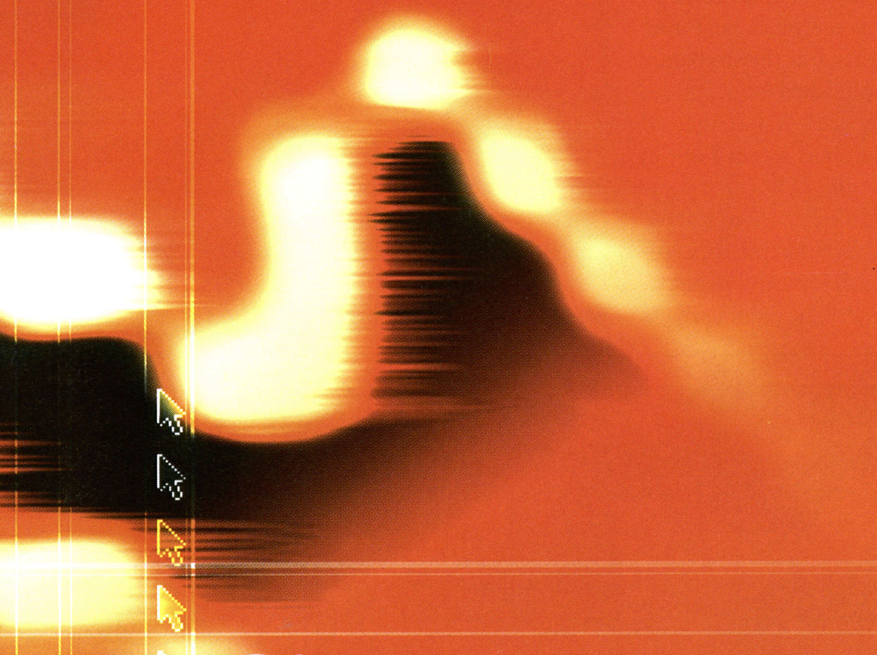

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Quadruple Vision

Director Mike Figgis changes the rules of feature filmmaking with *Time Code 2000*, an experimental motion picture shot live with four digital video cameras running simultaneously.

by Douglas Bankston

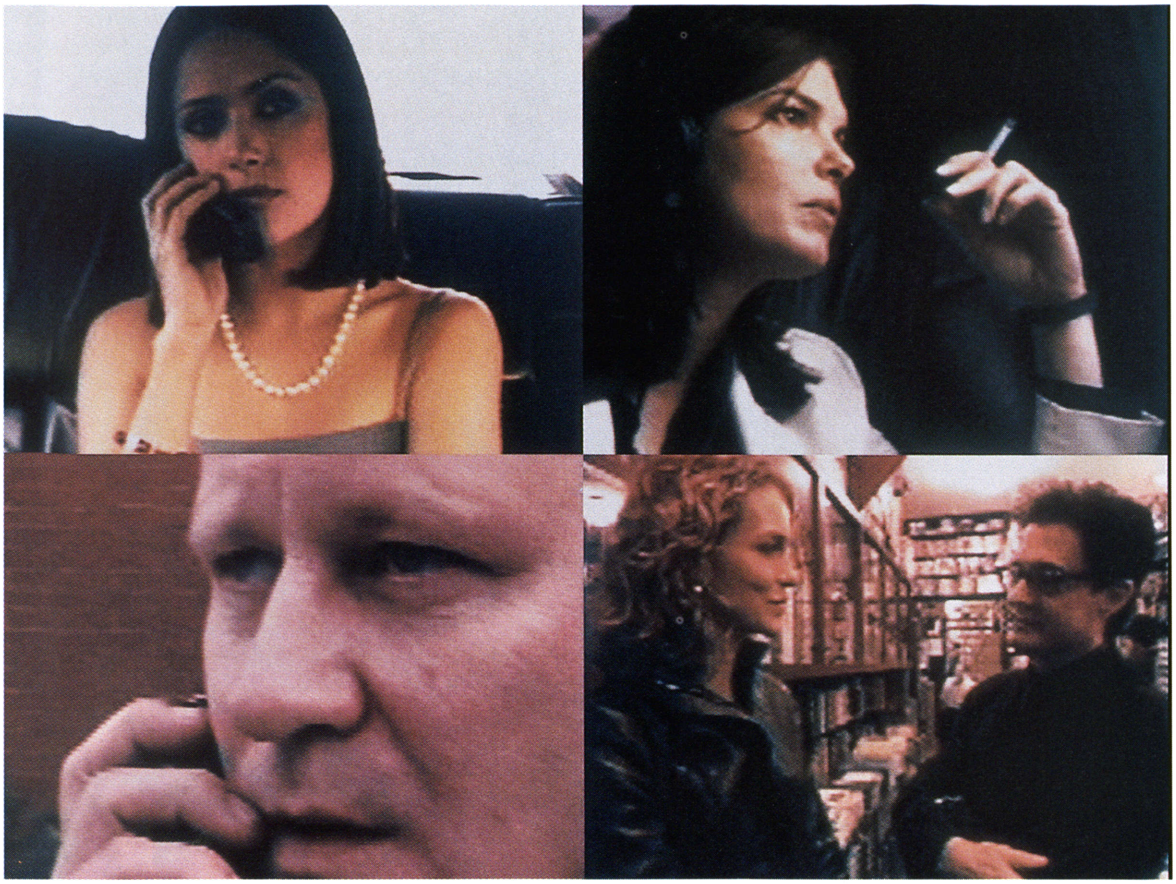
Unit photography by Elliott Marks

A stroll down Sunset Boulevard in the West Hollywood district would reveal the same scene every day: sidewalk cafes bustling with motion picture deal-making; strikingly beautiful women strutting in and out of chic boutiques as though they were on the fashion runway; red-vested valets parking behemoth Bentleys and black Mercedes; black-clad, alternative-rock musicians coolly sipping grande lattes; and, of course, wide-eyed tourists armed with camcorders, recording proof that they are standing amid the glamour that is "Hollywood." However, for two weeks last November, those camcorder-wielding amateurs warranted special attention, for hidden in their midst were four professionals shooting a real feature film.

British director Mike Figgis and three other cameramen — James O'Keeffe, Tony Cucchiari and director of photography Patrick Alexander Stewart — each shouldered digital video (DV) cameras and took to the streets last fall, weaving through pedestrians and Sunset locations while shadowing several actors. However, Figgis added a twist to the production: his dark, multiple-storyline comedy about the Hollywood studio system and its power players was photographed in one continuous take for 93 minutes, from four perspectives, without a single edit. All four cameras were turned on at the same time, and all ran on a common time code. The four views were then transferred onto 35mm film, the format in which audiences will witness a 93-minute, real-time feature with no cuts — in the form of four quadrants on one screen. This bold filmmaking experiment, aptly titled *Time Code 2000*, stars an eclectic ensemble cast that includes Salma Hayek, Stellan Skarsgård, Holly Hunter, Saffron Burrows and Jeanne Tripplehorn.

Experimentation has long been Figgis's forte. With a background deeply rooted in European

Photos courtesy of Screen Gems.



avant-garde theater, he has been known to take photographic risks in his edgy, dramatic films, which include *Internal Affairs* (1990), *Mr. Jones* (1993), *Leaving Las Vegas* (1995, see *AC* Feb. '96), *One Night Stand* (1997), *The Loss of Sexual Innocence* (1999, see *AC* April '99) and *Miss Julie* (1999).

Leaving Las Vegas marked a shift to more minimalist filmmaking for Figgis, who earned an Academy Award nomination for his direction. "When I did *Leaving Las Vegas,* which was pretty much a kind of Dogma-esque film," says the director, referring to the now-infamous *Dogma '95* filmmaking rules (see *AC* May '99), "my stated plan was to use as much available light as possible, to shoot handheld and to avoid using any cranes or the usual film equipment. I felt that I'd been working in that style and developing it in my own way."

In *Miss Julie,* his recent collaboration with cinematographer Benoît Delhomme, his style became even more minimalist. It was during this production that the seed for *Time Code 2000* was planted. "I shot [*Miss Julie*] in 16 days on Super 16," Figgis details. "Part of my technique in shooting the film so quickly was to shoot with two cameras, and we had a lighting setup that allowed us to shoot from any angle on a [large set]. I shot with one of the cameras, and my cinematographer shot with the other one; in order to watch what he'd done and to allow him to see what I'd done, I'd run the two takes together on the video playback. I became fascinated by this split-screen technique, and I ended up using it for the love scene.

"What really fascinated me was the fact that with two angles, you seem to psychologically see more than twice the amount of information than you do with one. Also, I was using 20-minute magazines, so I was doing 15-minute takes. I was very energized and pleased by the results in terms of the performances, [especially once] the actors got into longer takes. They were warmed up in a certain way — the more time they had to get into their strides, the better their performances became."

Years before, Figgis had considered shooting a real-time film, but film-magazine limitations halted that notion. Recent technological advances have made such a project a viable possibility. "I've shot a lot of documentaries using video and digicam, and I was aware that DVCam allows you to shoot for 93 minutes," he says. "I began speculating about whether it would be possible, and how complicated it would be to shoot an entire film in one take. I also thought about how much rehearsal one would need to do it, and how many times one could do it instead of shooting a couple of scenes a day. I followed the logic through and

Opposite page: At the head of the table, a motion-picture executive (Stellan Skarsgård, second from left) ponders his next deceptive move during a production meeting. The film features a sizable ensemble cast, including (from left, around Skarsgård) Xander Berkeley, Holly Hunter and Mia Maestro. This page: Audiences will view the four perspectives of *Time Code 2000* simultaneously. Sony High Definition Center created the quad-split format and transferred the DVCam footage to high-definition and then 35mm film.

Camera B operator Tony Cucchiari had to climb in and out of a limousine to photograph Salma Hayek and Jeanne Tripplehorn's performances. Hayek plays an aspiring actress who is involved with both Skarsgård's motion-picture executive and Tripplehorn's character. Below: Cucchiari captures a confrontation between Hayek and Tripplehorn. Due to the production's low-key, unpredictable nature, the cameraman managed to incorporate an unscripted confrontation of another kind when a police officer approached and demanded that the limousine be moved.

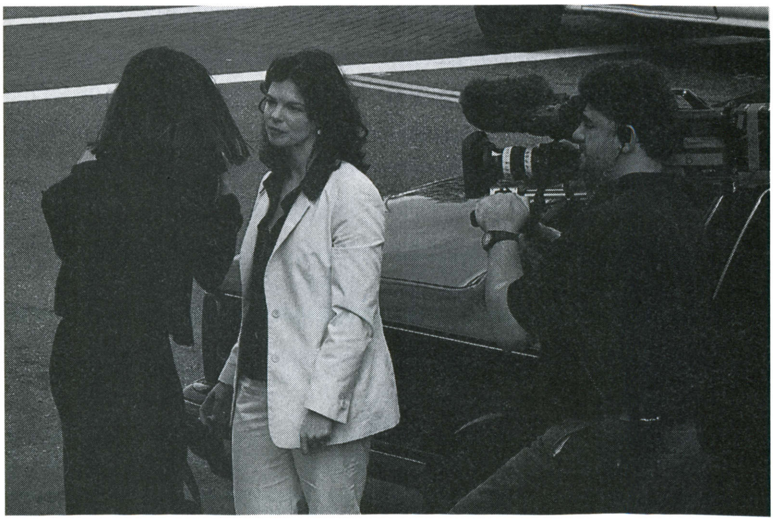
went [from two cameras] to three cameras in my mind, and then to four with the idea of four screens. I wondered if it was going to be too complicated, and too much information for an audience to absorb. I thought not, because audiences have become incredibly sophisticated in terms of [assimilating] visual information. Rather than bombarding them with an MTV editing style, where you never get to settle on one image, [I wanted] to go in a complex but alternate route by running four images without any editing at all — in parallel, in real time. Knowing that it was an experiment, I decided to go for it."

Surprisingly enough, Sony Pictures Entertainment, where Figgis's Red Mullet Productions banner is based, green-lit *Time Code 2000,* even though it is the very antithesis of traditional, big-budget, high-tech Hollywood filmmaking. Of course, the reduced cost of shooting with DV may have factored into the decision. "It was tricky, because I had no script and no conventional pitch," Figgis recalls. "I had to go in and verbally pitch it to the executives, which was one of the funnier moments in my life. There's no way I could have scripted this with four parallel lines of action; I think people reading all of that would have been really confused. Ultimately, [the Sony executives] had to trust me on this project and just let me go ahead and make it, because the only way I could demonstrate what I was after was to show it to them! Ultimately, they said 'Okay.'"

Once Figgis got Sony's stamp of approval, he began casting and choosing his camera comrades. O'Keeffe, who operated Camera A, has worked extensively in film and video and has recently photographed a high-definition feature called *Divorce: The Musical.* He also regularly operates for Isidore Mankofsky, ASC. "Because of my documentary background, I think I was pretty well-suited for the job," O'Keeffe states. "It involved rolling continuously in a no-edits situation, and that fascinated me. Mike and I shook hands on it, and an hour later I was in the first production meeting."

Director of photography and Camera-D operator Stewart was recommended by several sources at the Sony High-Definition Center, which would handle the *Time Code* film transfer. Stewart began his career on the lighting side of production before training his eye on camera operating. "Most of my work is done in television or on videotape," he remarks, "so I've learned for the past decade and a half how to make videotape look its best in every lighting situation." Stewart, in addition to numerous film-originating productions, also had the benefit of working on many tape-to-film projects, beginning in 1985 with a feature-length video documentary on alternative L.A. bands called *DUI,* which was transferred to 16mm. He also worked on a 1991 multi-format adaptation of Shakespeare's *The Twelfth Night.*

Camera-B operator Cucchiari, who also works in film and video, has photographed many comedy shows that feature spontaneous, handheld camerawork — certainly an appropriate training ground for Figgis's project. Cucchiari offers, "I'm a musician, as is Mike, and when he described the project to me, I said it sounded like playing in a band. His



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Figiis and Skarsgård work out adjustments in the *Time Code* timing script. Rather than writing out a sprawling script, Figgis used musical notation paper to choreograph a series of cues for the cast and crew. Below: James O'Keeffe tracks actor Leslie Mann outside Book Soup on Sunset Boulevard using a Sony DSR-130 DV camcorder.

face lit up, and he whipped out this series of music sheets where he had scored out the film. I thought, 'Well, this is courageous!'"

Because there was no formal script and blocking was mostly improvised, Figgis used the scoring sheets to plot out the specifics of where the actors and cameras needed to be, so actors and crew would all be on the same page. He explains, "Using music-notation paper in rather the same way one would write a string quartet, we wrote the timings in English, which meant that any actor at any point could look at his own script and say, 'At minute 53, I am doing this and the other three cameras are doing that.'"

Adds Cucchiari, "I thought it was very much like a jazz thing, where you come to the fore and solo for a little bit, and then retreat and back up the other musicians. In terms of working with the actors, it was very much like that, because you were playing and creating this piece live — unlike on a traditional dramatic film, where it's all worked out. This project was really spontaneous."

Though the film was improvisational, the actors were asked to adhere to an explicit storyline. Says Figgis, "I gave them very specific characters, and I told them what the story was. Within those parameters, they could improvise dialogue, but the dialogue had to make sense — they couldn't just go off and do their own movie. They had to be aware of the fact that there were 26 other actors and three other films running at the same time as their own film. I wanted to throw a lot of the responsibility back onto the actors."

To find suitable cameras to record a 93-minute feature, Figgis turned to video specialists Plus 8 Video in Burbank, California. Chris Nightingale, Plus 8's vice president of sales and marketing, remembers, "They had to have at least 90 minutes of uninterrupted recording time. DVCam, to that date, was one of the few formats that still had a broadcast-quality CCD imager that was able to record at least 90 minutes of footage."

The *Time Code* camera operators were originally going to use the Sony DSR-500, which featured the camera and recording deck in one unit. The camera was so new to the market, however, that very few existed for rental. In lieu of the newer camera, the production opted for the more common, professional-grade Sony DSR-130 industrial broadcast camera, the dockable version of the DSR-500. The DSR-130 consists of the DXC-D30 camera docked with a DSR-1 DVCam videotape recorder. "Each camera was set up with a Plus 8-designed, handheld camera-assistant package that we customized and designed based on requests from Mike and the other camera operators," says Nightingale. "The units included a follow-focus rig, pistol-grip holders and 3" LCD color viewfinders just to the left of the lens. Each camera had a Fujinon 4.8mm wide-angle zoom lens." Referring to this lens, O'Keeffe offers, "It's like a 10:1 — a very sharp lens with limited distortion. It's one of the better video lenses made now."

As the operators practiced with the cameras, they altered the setups even further to suit their personal needs — which were still not fully satisfied. Cucchiari concedes that "the video world has not caught up to the operating ability. Film cameras are [completely] thought-out; they're designed and augmented by operators so that the follow-focus is in the right spot and the handles work. With video, it seems as if all of that has been neglected.

"We had to walk through [Plus 8's] stores of equipment, pick things off the shelf and spend a day or two just fastening handle grips. We wound up cannibalizing various parts that had been left on shelves and trying to make the bracketry work so the cameras could be handheld for 93 minutes. It was much like constructing Tinker Toys. We tried things out for a few days, and some of us eventually just took that stuff off the camera to make it more suitable. Jim, Patrick and I all let go of the

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external LCD monitor. You can't view the LCD in the sunlight, and it was heavy and threw the balance of the camera off. Mike liked it, though. He was mostly indoors, so I guess it worked better for him."

Apart from spending a week discussing the project, the filmmakers never conducted any formal rehearsals. The film developed through actual shooting, as did the framing styles for the four quadrants. "I realized early on that the predominant frame was going to be the close-up," Figgis says. "I decided that the most useful format for this was a kind of TV format — a much squarer, more boxy look, which is quite suitable for a close-up."

"At one point," explains O'Keeffe, "Mike wanted to have four panels in a vertical configuration that would be side by side, and the only way we figured we could do that was in a 3-by-4 format. It was quite challenging to try to create frames that were that narrow. If you had two people talking, you had to stack them or be 10 feet away from them to get a two-shot. In the end, we decided that the four quadrants would be a full 4-by-3 frame."

Beyond the issue of frame size, it was predominantly left to the camera operators' instincts to capture the best image. Submits Stewart, "The actors are never going to land in exactly the same place, and they might not even come into the scene at exactly the right time. You can therefore have an idea of what you want for composition, but you have to change your angles depending on how the scene is evolving. Since this project had no edits, the cameramen could not make a mistake, or the whole take [would be] blown. You just had to keep your mind moving, keep thinking ahead, keep reacting in as smooth a way as possible, and hope that the actors were going to be somewhat reasonable in the given location."

"As we went on," points out Cucchiari, "we found ways of doing things, but then Mike would say, 'We've been working at 10 a.m. every day. Let's now shoot at 2 o'clock.' So when you get out there, the sun's suddenly in a different spot, you're casting a shadow on the actor, you can see yourself in glass surfaces and the whole thing is changing. You've got to react very quickly. That's where the jazz thing comes in — thinking musically, you've got to improvise a whole new way of covering the scene."

Adds O'Keeffe, "It wasn't a broken-down type of situation, where you'd do a master and then get your coverage — you're having to tell the story visually on the fly. There really wasn't enough room to have an assistant cameraman, either. We had to pull our own focus and make our

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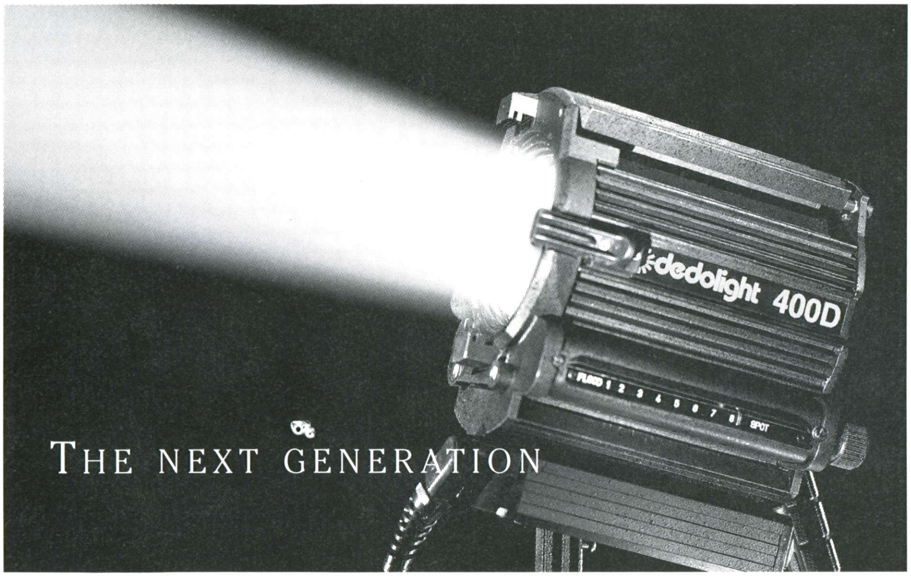

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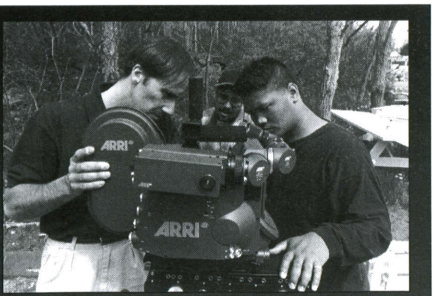

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own aperture adjustments.”

An assistant director assigned to each camera unit kept the cameramen reasonably on track — in terms of where they should be and what should be going on — by whispering instructions and cues. “They really were our eyes and ears, and they were very aware of the cue timings,” says O’Keeffe. “There were clocks in a lot of different locations, and due to the nature of the story, the actors could check their watches. But it took a lot of effort on their part to bury the fact that they were being very conscious of time.”

Because of the free-flowing, 360-degree camera movement, the filmmakers ruled out the use of microphone booms to record dialogue. All actors were fitted with wireless microphones, and the cameras were mounted with newer Sennheiser MKH-60 shotgun mikes. All of the audio was routed to a stack of Tascam DA-88 eight-track recorders.

The real-time feature could not be lit in the traditional movie manner, and because much of *Time Code* takes place outside, Stewart went with available daylight. However, for one office-building interior, the lightbulbs in the existing fixtures were swapped out with daylight-balanced bulbs to match color temperature. Stewart details, “Since there was so much daylight coming through the windows, I decided to change all of the fixtures on the first floor of the building to daylight-balanced fixtures, so we at least had some semblance of consistency. I consider what we lit with to be available light, because we could not hide any [other] fixtures. We were dealing with cameras that had a 4.8mm lens on the widest part of the zoom, so when we were on a wide shot, we could see everything — the ceiling, the floor, both walls. In a couple of scenes, I added some lighting fixtures that seemed like real, existing units, but they were actually units we had to add in order to make the people in the scene look a whole lot better."

The rest of the photography was straightforward, bare-bones filmmaking. "Because of the eventual blow-up, we chose not to filter the lenses," notes Cucchiari. "You want to start out really clean for a strong blow-up. Any diffusion would have degraded it."

Over the course of two weeks, *Time Code* was shot 15 times. The video format provided the cast and crew with the distinct advantage of viewing the results only hours after wrapping each day. "When we played the film back," Figgis says, "I would use an eight-channel mixer, and I would do a kind of DJ mix — a live mix using the four inputs from the cameras and some music on CDs — to give the actors the sense that they were watching a real film."

Figgis orchestrated the dialogue levels to bring attention to the more important of the four events happening at a given time. After seeing each day's work, the cast and crew discussed any changes or shifts in timing that needed to take place so that the actors could avoid stepping on each other's lines. "Based on the screen that we'd just aired," he explains, "I'd say, 'Okay, around minute 12, everyone is talking at the same time about important stuff, so if Salma Hayek and Jeanne Tripplehorn are in the limousine at that point, you guys wait four minutes before you start your dialogue and don't come in until minute 16. You don't have anything to do until that point, so just act naturally. You guys on screen D, why don't you bring in your dialogue a little earlier?'"

The unpredictability of an improvised shoot did give the cameramen and the actors some surprises, despite the fact that the production had all of the required filming permits. During one such incident, Cucchiari and actress

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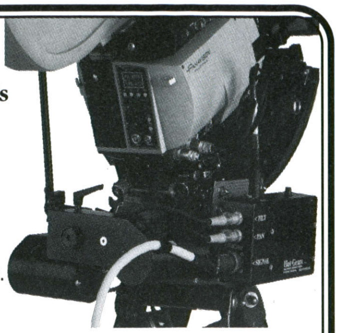

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Patrick Alexander Stewart records the film executive's phone conversation while an assistant director signals which way actor Skarsgård should look.

Tripplehorn had to think on their feet — while sitting in a limousine. Cucchiari elaborates, "We pulled up to the main location where the film production office set was, and just as we pulled up, a policeman pulled in behind us. The cop went up to the [limo] driver and said, 'You've gotta move,' and the driver answered, 'No, we're shooting a movie. You don't understand.' The officer replied, 'I don't give a damn what you're doing. You've gotta move.' So the driver got out, and they began having this really heated discussion.

"Meanwhile, I was shooting this scene with Jeanne, whose character was supposed to be snorting cocaine. She cleverly incorporated the presence of the police by pretending to ditch the cocaine out the window. I saw her doing this, and I thought, 'This is great!' I then panned over to the cop, who was parked directly behind the limo and visible over Jeanne's shoulder, because it totally made sense at the moment. The cop was yelling really loudly, and she and I just incorporated it. It just came out of nowhere, and it was brilliant."

Adds Figgis, "[The policeman] wouldn't believe that we were shooting a film, because he could not see any equipment, and he thought we were pulling a fast one. We were permitted, but it was so low-profile that it was a joy."

During post, Stewart supervised the color-correction so that all four cameras matched in terms of exposure and tint. The DV footage was then bumped up to digital Betacam to take advantage of that format's concealment and error-correction. At the Sony High-Definition Center, the masters were up-converted to HD a bit differently than usual. Alexandra Anderson, who supervised the transfer and posting of *Time Code*, recalls, "We did that to create the desired quadrant effect, but also to do a pixel for pixel up-conversion. The standard-definition digital Betacam tapes, if you measure the video in terms of the pixels from left to right and top to bottom, were 720 across by 480 high. The high-definition frame is 1920 across by 1080. We up-converted the digibeta signal and placed it within the HD frame in a quadrant that was that size, 720 by

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480. Each of the four scenes was placed within the HD frame in their corresponding locations — a two-by-two setup. The four quadrants together created a 1.33:1 aspect ratio, and that was then recorded out within a 1.85:1 aspect ratio."

Titles and credits were added in the HD format, and the finished feature was transferred to 35mm via Sony's patented M-mode process, which changes the frame rate from 30 fps to 24 fps. "We accomplish that by mixing fields together over a series of frames, using a proprietary algorithm that we developed," Anderson explains. "What you get is a much-improved presentation of motion, compared to the way [post technicians] used to transfer video — by throwing away the fifth field. [The M-mode process] determines which combination of fields is going to make the best mix by randomly pulling from 'before' or 'after.' Some material is thrown away, but you never drop a whole frame. It creates a kind of transparent edge on things that your eye accepts as the way film motion is."

An electron beam recorder (EBR) then recorded each frame of the HD master onto Fuji 71337 fine-grain positive stock in sequential, black-and-white exposures. The EBR created a red, green and blue color-exposure value for every film frame. After the Fuji stock was developed, Sony step-printed the interpositive on an optical printer to Kodak 5245 color negative. Contends Stewart, "I think you'll be very surprised when you see the picture. You'll say, 'Oh my gosh, was this video?'"

With *Time Code 2000*, Figgis has certainly modified the rules of filmmaking. "I think it will open filmmaking up," he concludes. "This was intended to be an experimental film, and the purpose for doing it was, as much as anything, a personal journey. The interesting thing is that when you take away the [ability to edit], it *does* allow an audience to experience a 'suspension of disbelief' in a way that they are never allowed to in [a traditional] film, because everyone in the world knows that an edit is a cheat. When the audience enters into real time, they experience a different, alternative psychological state while watching the film." ■

Although the other operators removed the camera's small LCD monitor for better balance and mobility, Figgis found it to be helpful.

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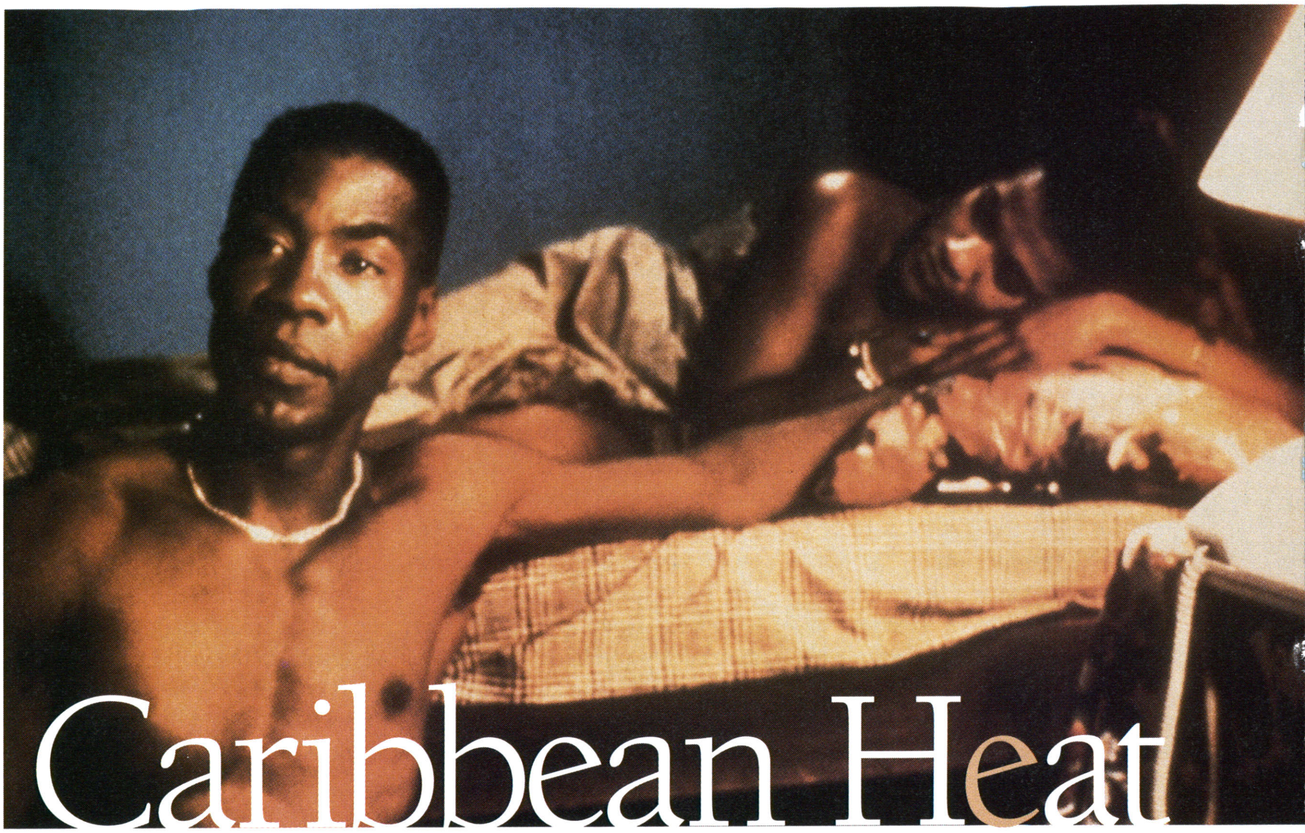

Caribbean Heat

Third World Cop, an experimental action thriller directed by Chris Browne and photographed by Richard Lannaman, captures Jamaica on digital video.

by Debra Kaufman

Unit photography by Wayne Tippetts

As events unfold in Palm Pictures' *Third World Cop*, viewers feel as though they've been dropped right into the impoverished, intense, urban Jamaican neighborhoods in which the film takes place. They have. *Third World Cop* was shot in several Kingston ghettos, including some locations so iffy that cast and crew were placed under guard. Captured in the digital video (DV) format, the film looks and feels like a documentary, even as it tells a fictional tale of best friends on opposite sides of the law.

If Palm Pictures' founder Chris Blackwell has his way, *Third World Cop*, which opens in the United States this month, will be just one prime example of a new genre: the urban Jamaican film, captured in the DV format. "Chris was very committed to DV in 1995," reveals *Third World Cop* co-writer/editor Suzanne Fenn. "He has a concept of making low-budget, DV movies that capture the life of urban Jamaica, with the idea of creating a genre, like Spaghetti Westerns."

Third World Cop is actually a follow-up to Blackwell's first venture in that genre: Island Jamaica Pictures' *Dancehall Queen*, which was also shot in DV. When the picture was released in 1997, it became the most successful movie in Jamaican film history. However, it might lose that honor to *Third World Cop*, which raked in close to $400,000 ($15 million Jamaican) in less than a month when it opened in Jamaica in early October.

With its small filmmaking community, Jamaica has few major players, but *Third World Cop* brought them together, as *Dancehall Queen* previously had. Executive producer Blackwell backed his first film, *The Harder They Come*, in 1971 and co-founded Island Alive with *Third World Cop* producer Carolyn Pfeiffer in 1983; he founded Palm Pictures in 1998 to release innovative, independent music and films theatrically and on DVD, CD-ROM, CD and home video — all using the latest technology. In line with this philosophy, DV was chosen as the format for *Third World Cop*. "DV is the ideal medium," notes Fenn. "The idea is to be able to use two or three cameras to shoot different angles at the same

Photos courtesy of Palm Pictures.

time, and DV is a tool that's light and inexpensive. Because Jamaica is so vibrant, we're able to capture what's happening in a live way and integrate it into the movie without worrying about the cost."

Set in the gritty streets of Kingston's ghettos and featuring a reggae and dancehall soundtrack produced by Sly & Robbie, *Third World Cop* tells the story of two friends whose lives have taken divergent paths. Capone (Paul Campbell), who has become a star crime-fighter, is transferred back to his hometown, where he runs into his old friend Ratty (Mark Danvers), who works for a notorious local "don" named Wonie (Carl Bradshaw). Capone also reunites with his childhood sweetheart, Rita (Audrey Reid, who began her career in *Dancehall Queen*). Capone's discovery of Wonie's violent, gun-running scheme brings the action — and the friendship — to a head.

The genesis of the story was Pfeiffer's idea to structure a script about the life of a real Jamaican cop named Trinity. When Trinity wouldn't participate, Fenn, who had already agreed to write the screenplay, was left on her own with subject matter that was unfamiliar to her. Joined by British journalist Chris Salewicz, Fenn first focused on the true story of Natty Morgan, a Robin Hood-like figure in the Riverton City ghetto. But the writers stalled after they unsuccessfully tried to interview Jamaican police to add the necessary realism.

Enter Chris Browne, who initially left rural Jamaica to study art. After assisting his uncle, Perry Henzell (the director of *The Harder They Come*) on a film, he turned his sights to filmmaking. While studying at the Art Institute of Chicago and Columbia College in Chicago, Browne (pronounced "Brownie") had camera-assisted on foreign films shot in Jamaica (including 1992's *Cool Runnings*) and had written, produced and directed his own short films.

Prior to making his feature-film directing debut with *Third World Cop,* Browne tapped some connections to research the life of a Jamaican police officer. "It's a job where people don't want to speak about what goes on," says Browne, who also co-wrote the project. "Luckily, I knew people who knew a lot of police. Through them, we were able to interview many police and collect numerous stories that we added to the script. The film became a police story with a Jamaican context."

Adds Fenn, "Through Chris [Browne], we were able to gather real story after real story, which we wove like lacework over the structure of the story we initially had. Any time we tried to invent, Chris [Blackwell] didn't like it. Any time we showed him material based on reality, he loved it. It was fascinating for me to surrender to a reality without projecting myself."

The grittiness of the low-budget DV format also lends itself to an urban Jamaican story that blends fiction and truth in a realistic setting. Although director of photography Richard Lannaman had gained quite a bit of experience shooting video, *Third World Cop* marked his first time using the DV camera. The Kingston-born cinematographer, who also doubled as the film's production designer, was introduced to filmmaking while working as an art director at McCann-Erickson. Lannaman, who had recently shot an unreleased 35mm feature film, had also been second assistant director on *Club Paradise;* shot the underwater sequences in *Wide Sargasso Sea;* and was camera operator on the splinter unit of *How Stella Got Her Groove Back*, in addition to working on two of Browne's short films set in urban Jamaica.

With education and experience in art and design, Lannaman spent three weeks designing the film before production began. The film's 20-day shooting schedule and limited budget ($500,000) dictated locations rather than sets. "The fact that the film feels so real probably has a lot to do with its very low budget, which dictated that we had to use things as they were," jokes Browne, who spent two weeks walking through Kingston's inner cities with his camera in hand. "I knew what I was looking for. It would have taken longer if I'd sent a location scout to shoot pictures."

After Browne made his initial selections, he brought Lannaman along to check out his choices. "We didn't want to make moves during the day, so we had to find locations

Opposite: Capone (Paul Campbell) proves he's a man of action in the film's opening sequence. This page: Capone greets a group of friends after returning to his hometown and engaging in an impromptu game of street soccer. He soon discovers that the neighborhood has taken a turn for the worse.

Right: Capone (right) chats up Rita (Audrey Reid) and his childhood pal Ratty (Mark Danvers), who's become the "left-hand man" of a one-armed crime boss. Below: Capone senses danger during a tryst with his latest conquest (Amelia Sewell).

where we could stay for a period of time and shoot many spots in one area," explains Lannaman. "It wasn't difficult to do. The police station was the most difficult to lock down, because most police stations are used constantly; we had to find one large enough to accommodate the crew, but also where we wouldn't disturb the police."

When the choice came down to two neighborhoods, Browne and Lannaman would pick the safest one. The fact that the film involved weapons made its production even more sensitive. "It was pretty risky to carry weapons into questionable neighborhoods," Lannaman admits. "We had to have a certain number of security guards and police working with us because we had weapons."

Nonetheless, Browne notes, the neighborhood people were quite accommodating due to the fact that the production was bringing work into the community. The production also recruited locals as extras.

The two Sony DS-130F digital cameras, each of which included a DXC-D30 camera head and a DSR-1 dockable recorder, arrived only three days before production was scheduled to begin. Lannaman, who had not used the cameras before, spent the time reading the manuals and doing tests. Though he had requested that the production buy cameras with the wide-angle 16:9 aspect ratio, the budget wouldn't permit it. Lannaman, concerned about the eventual blow-up to film for theatrical projection, asked the lab for the specs involved in going to film. These arrived on the last day of the shoot, and Lannaman's hair turned white when he read them. (Read on to find out why.)

In some ways, the production resembled the neighborhoods it shot: lack of resources dictated ingenious solutions. Lannaman opted for a wide-angle zoom lens, "but of course, we couldn't afford it," he says ruefully. "Instead, I used the standard zoom lens [the VCL916BYA] that came with the camera and stuck a wide-angle adapter on it for the wide shots. I literally stuck it on with tape, because we couldn't afford a matte box with accessories."

Lannaman's lighting package was also quite small. In addition to his largest light, a 1.2K HMI Par, the cinematographer had a Nine-light fitted with daylight bulbs, a 4' x 4'-bank Kino Flo, a 4' x 2'-bank Kino Flo and a small tungsten kit made up of a 5K Fresnel incandescent, a 2K Fresnel incandescent, a 1K Fresnel and a 300-watt Fresnel. Day interiors were shot with the HMI and Kino Flos; numerous exterior scenes were rendered in available light. Lannaman maintains that the small lighting package wasn't a problem, noting that he relied heavily on his smallest lights, the 300-watt lamps. (Because the production couldn't afford to rent a generator, the crew "borrowed" electricity for some shots by shimmying up electrical power poles and patching into the grid.)

Compensating for the small lighting package was the Sony DS-130F DV camera itself. "The camera loves lower light levels," Lannaman enthuses. "I can light a scene at night and use lots of small lights rather than big lights. Instead of a 4K HMI, which I'd normally use to fill a backlit lot for a moonlight effect, I could scrim down a 1.2K Par and it looked beautiful."

With a schedule that dictated shooting eight pages a day, planning

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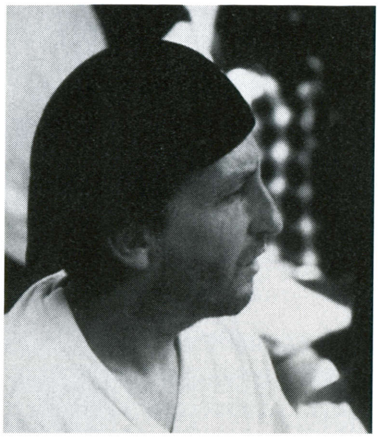


Left: Director Chris Browne. Below: Capone exudes "cop cool."

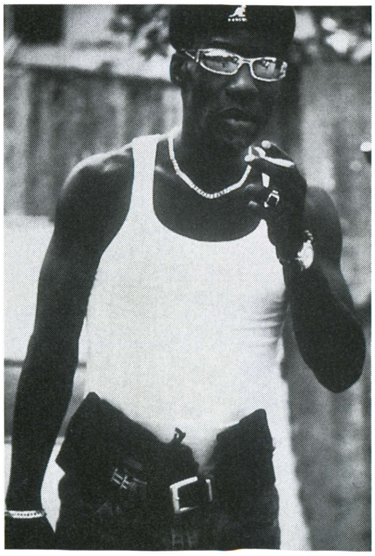
was crucial. Prior to production, Browne and Lannaman carefully walked through each scene more than once to save time during production. "We would do a rehearsal, light it, get two takes and move on," recounts Browne. "That's the only way it would work in 20 days. The sound man was screaming at me that he wanted another take. I'd say, 'Sorry, this is a movie, not a radio show.' But he was good, so 99 percent of the sound was recorded on location. We only added gunshots and sound effects in the sound mix."

Browne adds that because the production didn't have a Nagra, the crew used a DAT recorder — one without time code. Instead, they ran a cable from the DV camera to the DAT recorder, which allowed them to generate a time code on the soundtrack that would match the picture. When they began to edit, they laid down the sound from the DAT separately, checking to make sure the time code was in line. It was.

The filmmakers learned to compensate for their small budget in many clever ways. To create the wood-and-zinc look associated with Caribbean neighborhoods, Browne hauled around zinc flats in the back of a truck; these could be pulled out to quickly dress a modern concrete area or create a more intimate environment. Because the production had only one set of squibs and one set of costumes for the gun battles, the two Sony DS-130F cameras came in especially handy, allowing the filmmakers to get maximum coverage of those scenes.

Lannaman says his most challenging — and favorite — scene in the movie is one in which Ratty has broken into the church where he is storing his contraband in barrels. Capone, who has been listening for Ratty and his gang on the other side of a fence, spots him. An added scene, it was shot at 10A West King's House Road, where Henzell made *The Harder They Come*. Though not a real backlot, the site offers little houses and a big yard, and it can double for rural or urban Jamaica. "The lighting was organic," says Lannaman. "It was the most beautiful scene for light and tension in the whole film. I lit it with very small units and it looked brilliant, as if I'd used a lot of light."

Another dramatic scene occurs when Ratty meets Capone at a telephone booth on a lonely street in the middle of the night. Capone offers Ratty a deal that would give him a new identity and ship him to Antigua if he agrees to inform on the bad guys, and the naive Ratty sees a glimmer of hope. "I tried to keep Ratty as dark as possible, because I wanted him to blend into the shad-



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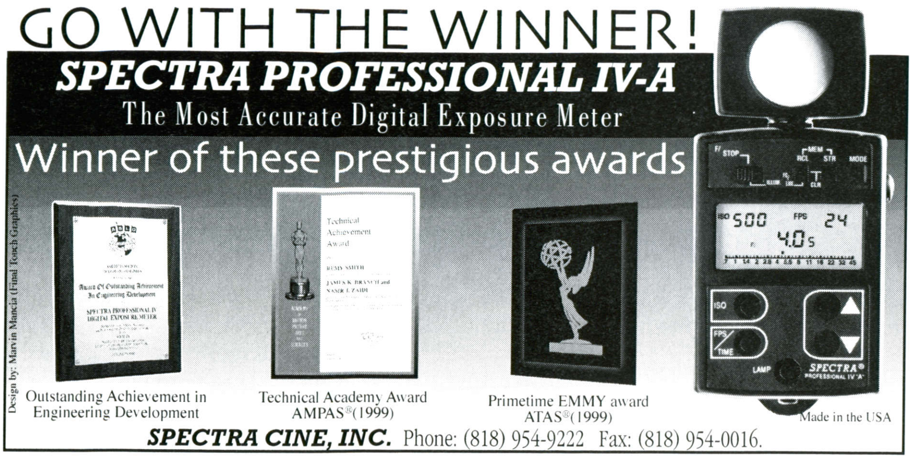

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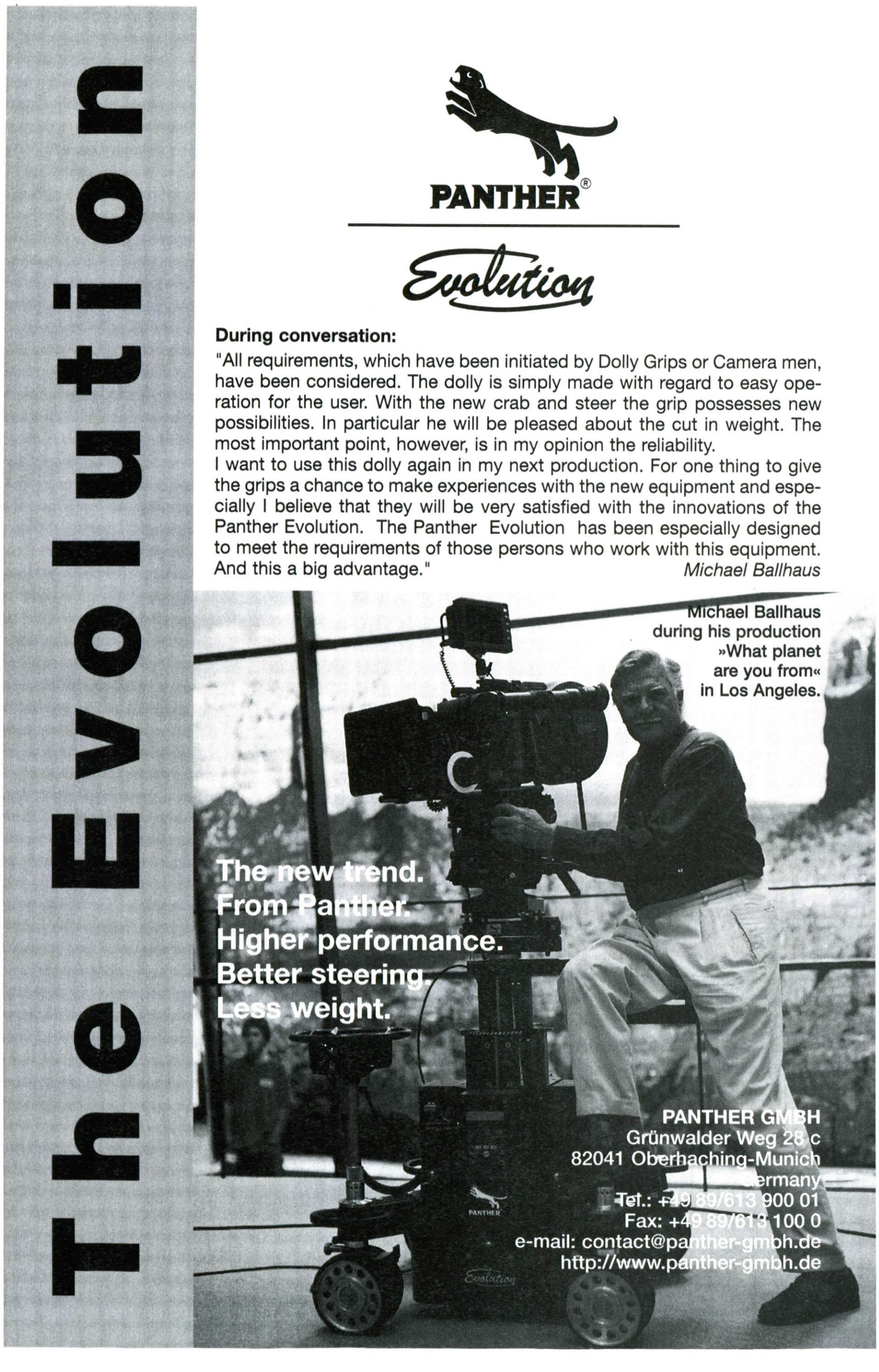

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ows against a zinc fence, so you could barely see him," Lannaman details. "I had one big light, my 1.2K HMI, on a scaffold to provide 'moonlight.' I used a lot of scrims, as they would bring down the intensity to create a subtle, realistic look. I had a backlight, a 300 scrimmed down to the max, on Ratty's face, and another little 300 on the opposite side of the moonlight to highlight his dreadlocks. They were very subtle lights."

Interior scenes also benefitted from subtle lighting and the production's ingenious re-use of locations. Like many other scenes, the movie's opening sequence, which begins with Capone making love and ends with him engaging in a shootout, was lit with practicals — in this case, a lamp at the head of the bed. Lannaman used the same location for a scene at the end of the movie in which Ratty kills a character called Ninjaman. "We used the same house, shooting one side for one scene and the other side for the second scene," Lannaman explains. "I changed the lighting somewhat and dressed it differently, but we had to use the original color because we couldn't afford to paint the walls back to their original color."

A dramatic scene toward the end of the movie, in which the police take Ratty's statement, is lit entirely by a practical lamp to create drama and "the aura of interrogation," Lannaman says. "We tried not to make it look pretty, but as real as you could get." For interior night scenes, Lannaman's main lighting unit, the 2K, was aimed through the window from outside, so that if the light in the room was turned off, the only illumination would appear to come from outside.

The soccer scene was also a clever mix of location and lighting. Browne reports he had a hard time finding a small, confined soccer field that lent a feeling of the inner city. He finally found one in an area that was "more trouble than it was worth," and wound up deploying his

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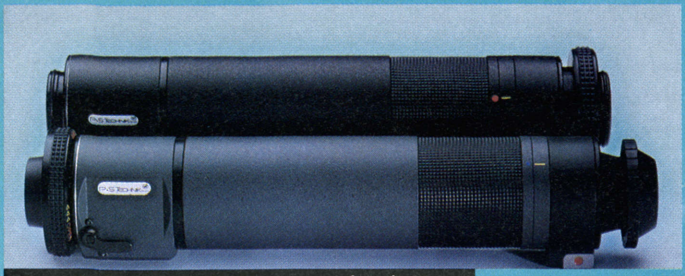
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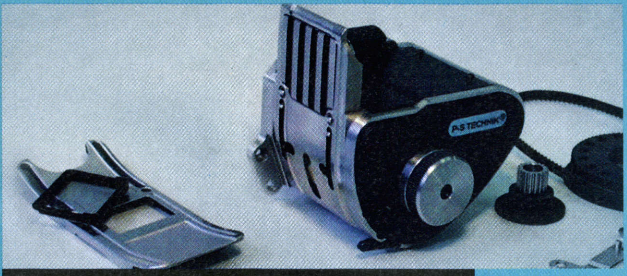
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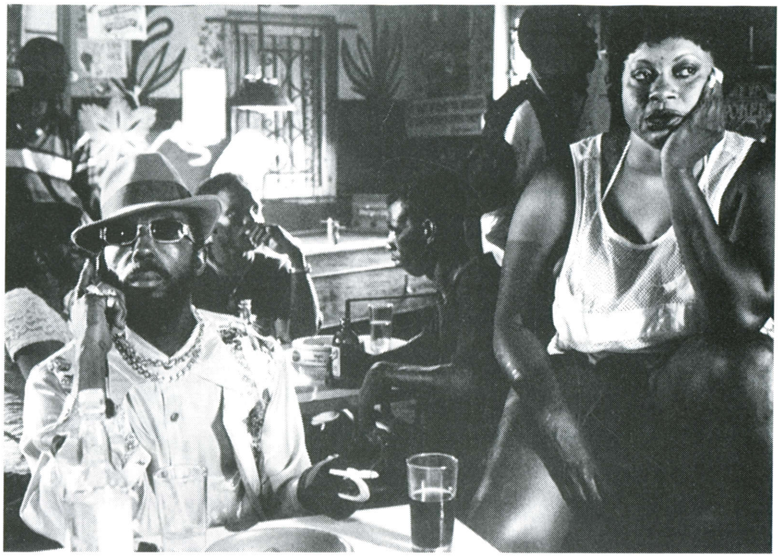
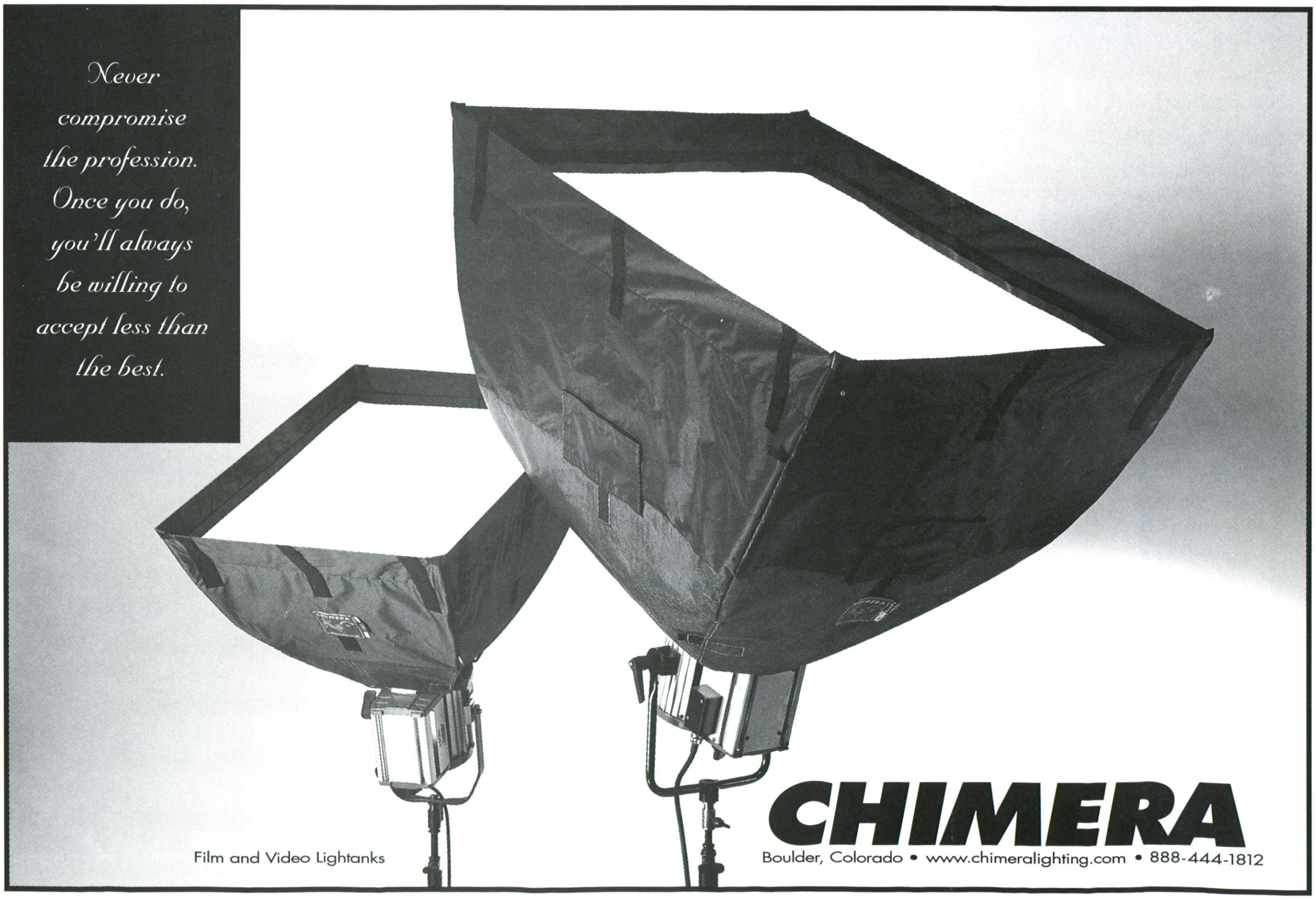


Crime don Wonie (Carl Bradshaw) — so named because his left hand has been replaced with a metal claw — selects some new dancers at his nightclub. The woman at right (Angela Hunigan) is obviously dejected to be out of the running.

well-used zinc flats to create the cramped soccer field. Though it may look as if the scene was partially shot with a Steadicam, a production that couldn't afford a matte box certainly couldn't afford a Steadicam. Instead, Lannaman jerry-rigged one, attaching a stick to the top of the camera and a thick aluminum pole to the stick. "We held the pole with the camera, which was equipped with a wide-angle lens, six inches off the surface of the ground and ran with it," says Lannaman. "That was our Steadicam. My motto is improvise, adapt and overcome — by whatever means possible."

That could easily be the motto of *Third World Cop*. But the story isn't over. Remember those lab specs? Over the course of shooting the film, Lannaman had pushed the shutter up, first to 1/100 of a second, then to 1/250, and finally to 1/1,000, in order to give the last action scene a "staccato, *Private Ryan*" look. Imagine his dismay when he read the lab's proviso "not to shoot over 1/60" of a second. "I was biting my nails when they were doing the transfer," admits Lannaman, who has since shot a documentary, *Mutiny*, in wide-format DV for the U.K.'s Channel 4. "But nobody from the lab called to question, and it seemed to go okay. I like the edgy look it gave us."

Despite another minor tweak — some cropped action and headroom due to the camera's TV aspect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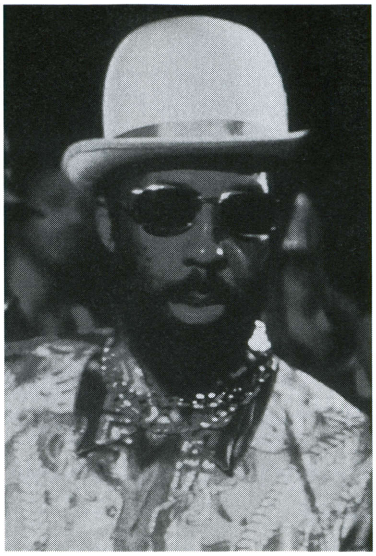
ratio — Browne and Lannaman, both film buffs, declare themselves pleased with the results. “I thought the quality of the blow-up was great,” says Browne, who first saw the print at a screening in Toronto. “It had the texture and contrast of film.”

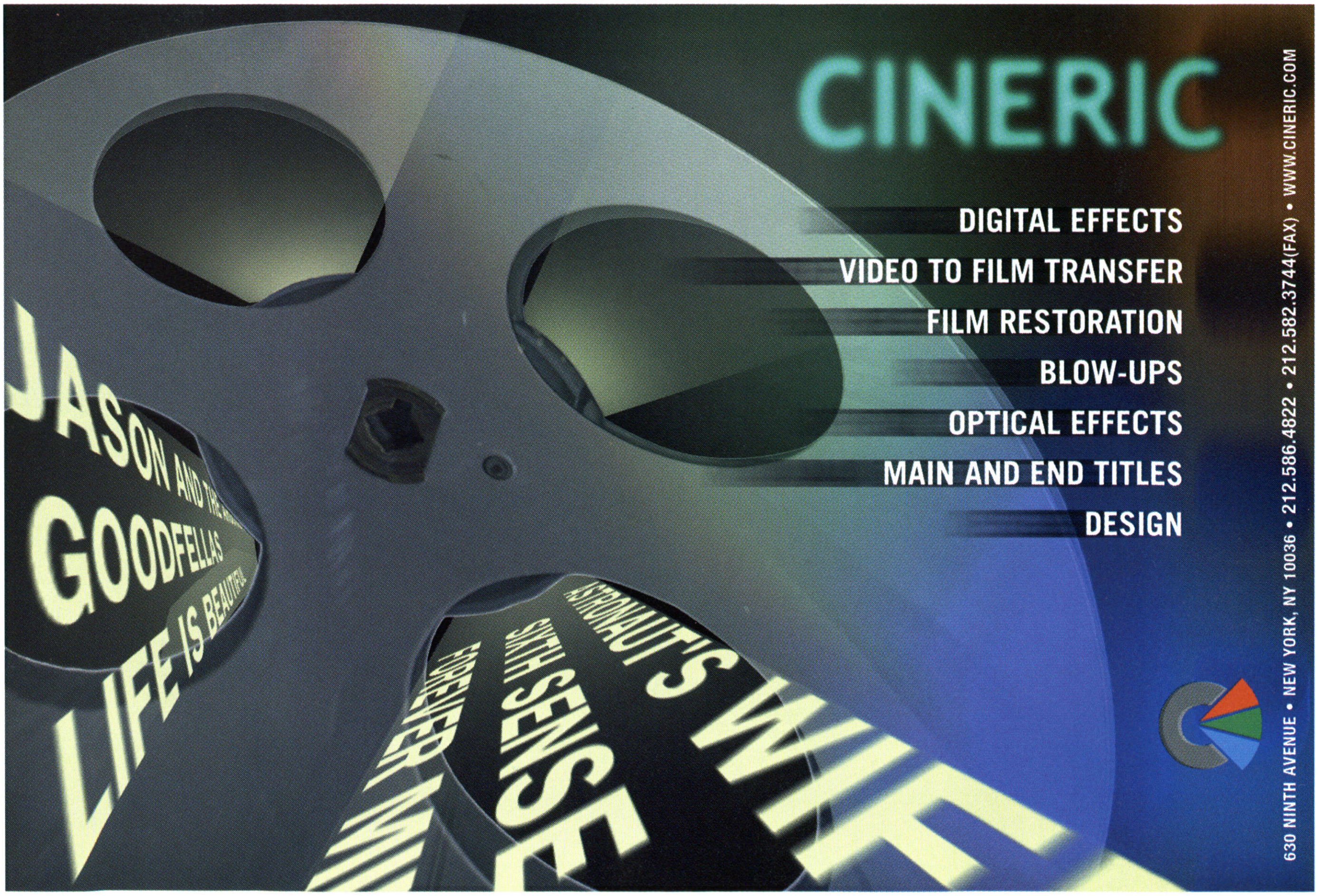
Though Browne and Lannaman both prefer to shoot film, they realize it's more difficult in Jamaica, where budgets are small and no film lab exists. “We get a lot of American films in Jamaica, and when you're making American films, your mind can run free because you have a big audience and you can spend a lot of money,” says Browne. “In Jamaica, the audience is limited. I have to look at small European films like *Trainspotting; Lock, Stock and Two Smoking Barrels;* or *Run, Lola, Run* in terms of making films in Jamaica. Those types of films use the creative mind and have an edge, within the constraints of a budget.”

Blackwell, Browne, Lannaman and everyone else associated with *Third World Cop* hope to show the world that Jamaica has the creative talent to produce a film that can cross over to international popularity. Blackwell remains committed to the DV format and to his idea of an urban Jamaican genre of great stories and great characters, set in the ghettos against a reggae beat. Fenn reports that two more Palm Pictures movies are already afoot: one zooms in on an intimate slice of *Third World Cop*, and the other, *The Last Rites,* follows an American priest's relationship with a big gunman in the Kingston ghettos.

For Lannaman, the experience of shooting *Third World Cop* in DV was a personal turning point — one that might have larger implications for filmmaking in Jamaica. “DV is looking better and better,” he says. “People in Jamaica who have always wanted to make films are excited about the success of *Third World Cop*. Some have a good script but can't afford to make a film. Now, they'll be able to make it in DV.” ■



Wonie displays the sartorial splendor of a true “gangsta.”



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High Note

Progressive-scan, high-definition video strikes a chord in *Theo Plays Chopin*, a performance piece directed and photographed by Robert Primes, ASC.

by Stephanie Argy

Frame grabs courtesy of DemoGraFx
Photography by Gary Demos

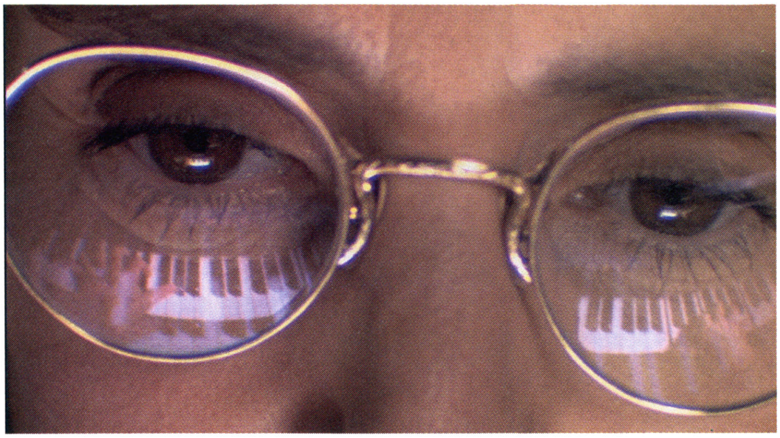
Ever since they first met at the San Francisco Conservatory, music has run through the lives of Bob Primes, ASC, and his wife, Theo. Though Bob gave up his own musical aspirations to become a cinematographer and director, he has remained fascinated by classical music, particularly the process through which his wife — now a well-known classical pianist — masters a piece of music. "I've thought for a long time about how I would film Theo playing the piano," says Primes. His observation was that after practicing, the pianist has ideas and emotions that flow down through her hands and through the more than 4,000 moving parts of the instrument.

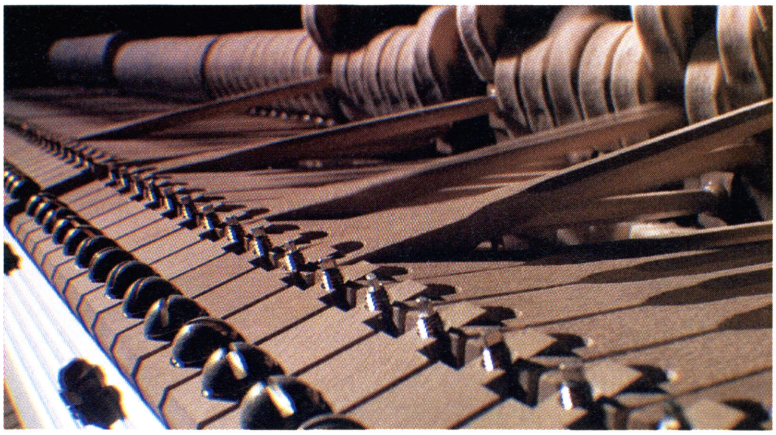
This creative dynamic was what Primes hoped to show when he made *Theo Plays Chopin*, an eight-minute performance piece that's also the first movie shot with a progressive-scan, high-definition (HD) video camera. The idea for the short came from Gary Demos, president and CEO of DemoGraFX. Demos's company specializes in compression, and he has a constant need for material he can use in tests. Having long worked with cinematographers, who shot film footage for him, Demos wanted to experiment with HD video. He approached Primes and suggested taping Theo playing the piano. Primes was interested, but only if the project could be done right.

To Primes, this meant designing a well-paced film, rather than simply shooting test footage. He laid out an elaborate series of shots that would not only feature Theo, but also allow the camera to swoop over the piano, race along inside of it and even glimpse the action of the instrument's hammers hitting its strings. Equally important was the technical side of the shoot, since the camera was a prototype designed and built expressly to demonstrate that progressive-scan high-definition was possible.

Branko Gerovac, a co-principal investigator on MIT's High-Resolution Progressive Scan Camera Project, explains that in May of 1993, a conference was held in Cape Cod, Massachusetts, to discuss standards for digital video (DV). The main subject was whether the scan for DV should be interlaced or progressive. Interlaced screens, like those on the NTSC televisions currently in every home in the country, scan an image in two passes — one for the even lines, the other for the odd. Progressive screens, such as computer screens, scan the image in a single pass, resulting in a sharper image and less distortion of motion.

While everyone agrees that progressive scan is a worthwhile goal, many people, especially back in 1993, maintained that progressive scan for HD was years away. In fact, at the Cape Cod conference, advocates of the 1080 interlaced standard for HD video went so far as to declare that progressive-scan HD was impossible.





Opposite page: Classical pianist Theo Primes takes to the keys for *Theo Plays Chopin*, the first movie shot with a progressive-scan, high-definition video camera. Her husband, Bob Primes, ASC, directed and photographed the performance piece. This page: Although he was shooting a test, Primes wanted to design a well-paced film that would not only showcase the camera's capabilities but also highlight details of his wife's performance.

Aided by funding from the Defense Advanced Research Project, Gerovac and his colleagues at MIT set out to prove them wrong. The key focus of the MIT project was to get a functional camera ready as soon as possible. "We didn't want to spend two years working on this and not end up with a workable camera," says Gerovac. "Our objective was to reduce the risk, to develop this camera as much as possible."

To reduce the chance of failure — and to avoid repeating years of engineering work that had already been done by camera experts — Gerovac and his fellow researchers decided that instead of building a new camera from scratch, they would adapt an existing one. After much research, the camera they selected was the Philips LDK9000,

Over the course of the 18-hour shoot, Theo played about four hours' worth of piano. The audio track was recorded in advance to make her more comfortable during the shoot. This shot was taken with the help of a crane-mounted camera equipped with a Kenworthy/ Nettmann snorkel-camera system (see photo on page 78).

which had been designed for Europe's Eureka DV program. "We modified the camera to be 720P," says Gerovac. Other HD cameras have 1,080 interlaced lines of resolution, a format referred to as 1080I; 720P, on the other hand, means that 720 lines are scanned progressively.

According to Gerovac, the progressive scan more than makes up for the fact that there are fewer lines of resolution. "If you do the mathematics, it turns out that 720P is a bit better than 1080I," he says. He explains that the difference is caused by the way the image is captured. A progressive-scan camera, like a film camera, captures the entire image at one point in time. With an interlaced camera, the image is captured over time. "When you're looking at an [interlaced] image, different pixels are occurring at different points in time," he says. This leads to what he calls a temporal discontinuity. "You see this sometimes when you examine a still video image — it's a kind of 'tearing' in the image." He explains that this kind of discontinuity doesn't occur with a progressive camera.

The researchers also allied themselves with Polaroid, who provided the CCD sensors that were installed in the camera. "We ended up with sensors that were highly advanced for the time," Gerovac notes.

Another important feature of the MIT/Philips/Polaroid camera is that it runs at 60 frames per second. "We actually wanted to make a 72 fps camera, but the Philips electronics wouldn't go that high," Gerovac says. "We also looked into making a 24 fps camera, but that would have meant more risk. We saw that as a followup project." As always, he explains, the decision was made with the project's ultimate objective in mind: "We were trying to develop this camera in time to impact the Advanced Television Standards Committee process." Other companies were also doing research, and his project was one of three trying to produce a camera.

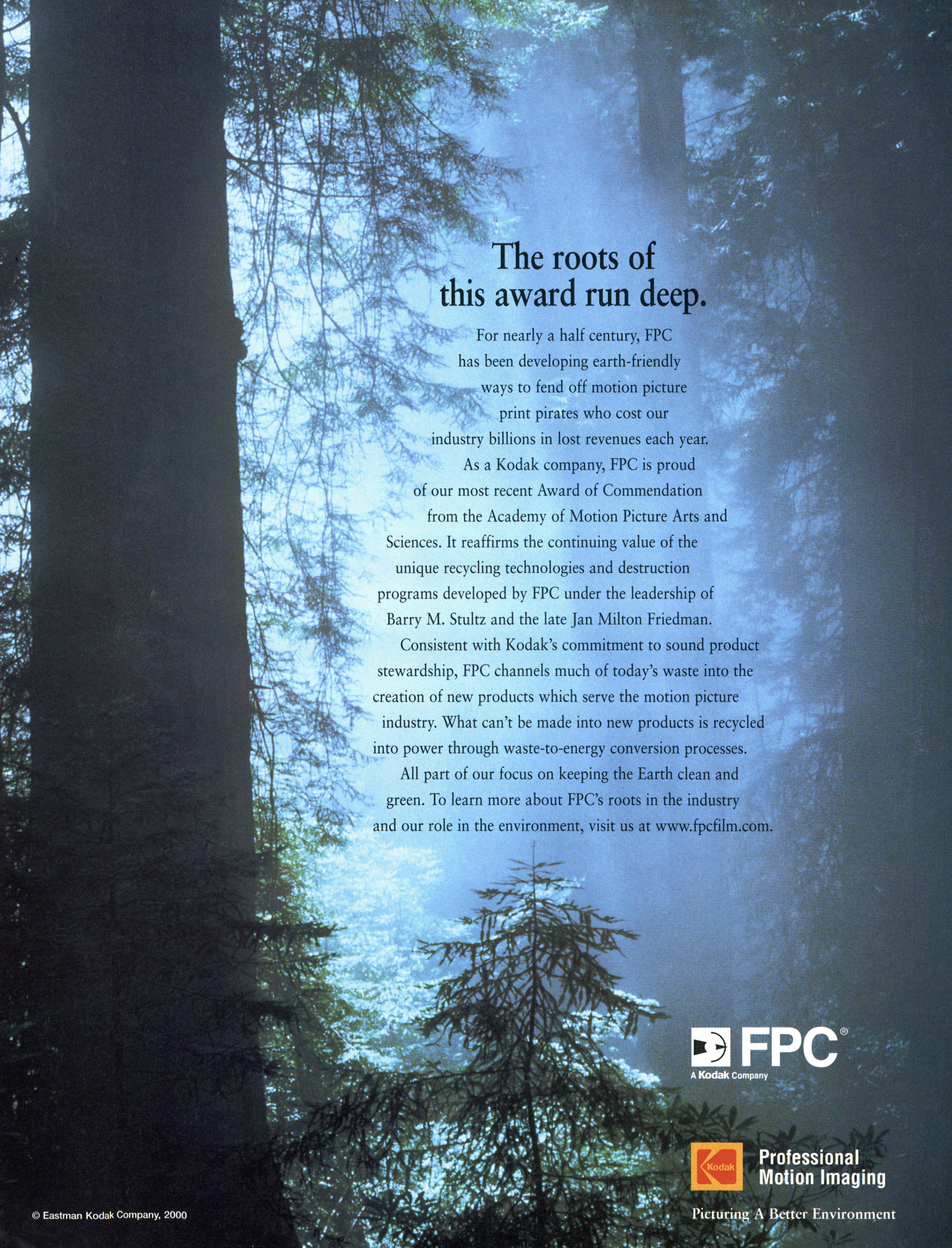
Throughout the process, the MIT team tried to keep as quiet as possible about what it was doing. "People didn't realize we were on as fast a track as we were," he recalls. "Anyone who's designed a camera knows it's a multi-year project; we were trying to sidestep that."

By early 1996, two prototypes of the camera were ready. "We very quickly put together a paper and organized a demonstration site at the National Association of Broadcasters show in April of 1996," Gerovac says. "We caught everyone by surprise. We became the talk of the show, because people still believed you couldn't do this." Broadcast magazine recognized the achievement by giving the camera its Pick of the Show for Advancement in Science and Technology. Afterward, one of the two cameras went to what Gerovac calls "an unnamed government agency." The other went to DemoGraFX.

"When we first got the camera, we began planning a series of test shoots," says Demos. Initially, no tape decks existed that could record the camera's output, so it fed directly into a hard drive and the length of a shot was limited to 20 seconds. Early in 1998, though, DemoGraFX obtained a Panasonic deck and analog-to-digital converter, which allowed the company to plan tape-based productions. *Theo Plays Chopin* was one of these, though Primes's ambitions for the project ended up pushing the technology much further and in many more directions than Demos had anticipated.

From the perspective of DemoGraFX, one the biggest challenges created by Primes was his desire to use interchangeable lenses rather than a zoom. The difficulty with the camera, as far as lenses are concerned, is that the image coming into the camera has to be split into three separate beams, one for each color chip. To accommodate the prism that does the splitting, the distance between the lens and the recording plane is about three inches — much deeper than that of a 35mm motion-picture camera. As a result, 35mm lenses are not suitable for the camera.

However, a Hasselblad still camera has a similarly large flange depth, so its lenses could be adapted for use with the HD camera. Clairmont Camera built a lens adapter based on a design by Bob Nettmann, who had also contributed to the engineering of the Kenworthy/Nettman snorkel-camera system. Primes says that the adaptation, coupled with the Kenworthy/Nettmann system, caused a lens to be about 25 percent of its original focal length. ➢



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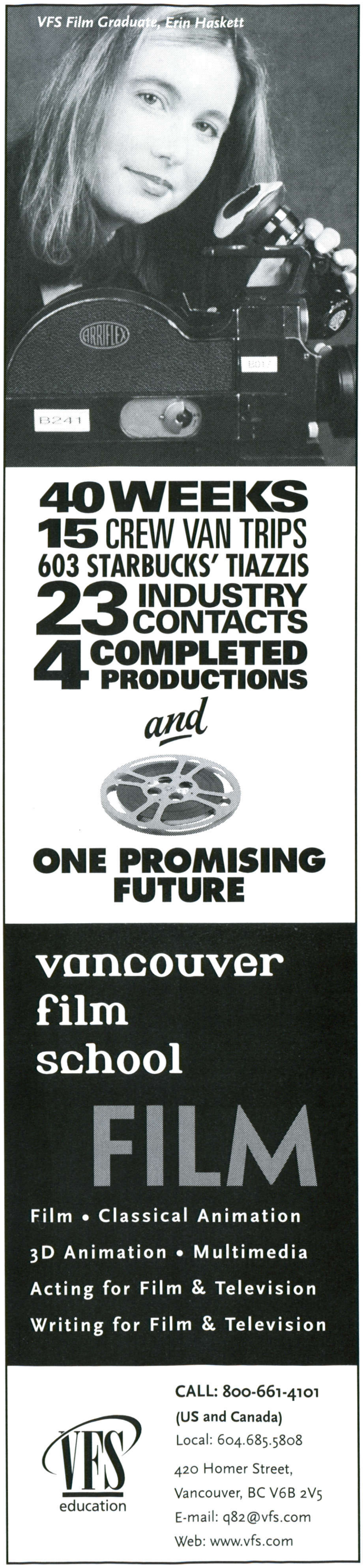

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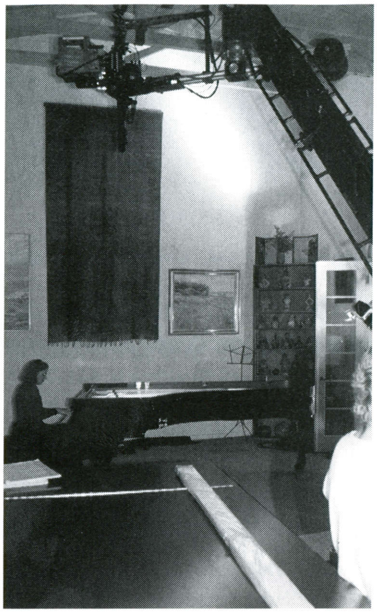

The Primeses wanted to shoot the film in their home, so everything was removed from their living room except Theo's two Yamaha concert grand pianos.

The Kenworthy/Nettmann snorkel-camera system also enabled Primes to get unusual, dramatic shots of the piano that would have been impossible with conventional optics. Using the snorkel, he could bring the camera within an inch of the instrument's strings, keys, hammers and other elements. The extremely close focusing of the device was handled by camera assistant Stephen Shuttack.

In addition to the help from Kenworthy and Clairmont, other favors were called in as the production unfolded during the summer of 1998. Chapman provided a 20' crane and a hothead. Lighting and grip gear came from Cinelease and the television series *Felicity*, which Primes was about to start shooting. (He later earned an Emmy for his work on the show). Many of the crew members also came from *Felicity*. Postproduction for an NTSC version of the short was contributed by Leon Silverman at LaserPacific.

Primes insisted on shooting at his and Theo's home. Demos offered the couple the use of his Steinway piano, but the couple preferred working with Theo's two Yamaha concert grands. "The photographable craftsmanship of a Yamaha is perhaps the best of any piano," explains Primes.

The Primeses recorded the audio in advance, which made Theo much more comfortable about the shoot. Once the music was done to her satisfaction, she explains, "I knew it wouldn't be that difficult." As it turned out, Theo felt that the hardest part of the shoot was the physical aspect. Over the course of 18 hours, she played about four hours' worth of piano, and by the end of the day the veins on her hands stood out, as they would on any athlete who has had an intense workout. Her husband found this intriguing and lit her hands from the side, just as a dancer is normally lit, to make her muscles and veins stand out even more.

One piano action Primes wanted to show was the instrument's hammers actually striking the strings. He explains that an instant before the hammer hits, the mechanism powering it releases it into free flight, so that when the hammer hits, it will bounce away and not deaden the sound produced by the string. The problem is that the strings themselves block this from being seen. The solution Primes devised was to replace the strings of one of Theo's two pianos with a sheet of Plexiglas. While Theo was taped playing one piano, a Yamaha expert modified the other.

Another shot that Primes is particularly proud of is an image of the piano keys reflected in Theo's glasses, a sight he has seen many times during their 35-year marriage. "I've always loved that," says Primes. To capture it, he says, "we lit the bejesus out of the keyboard. The bounce lit her face."

Primes says the hardest thing about the shoot was figuring out which sequences had been covered. Unlike a traditional film with a script, this project had only sheet music as a blueprint. "Unfortunately,

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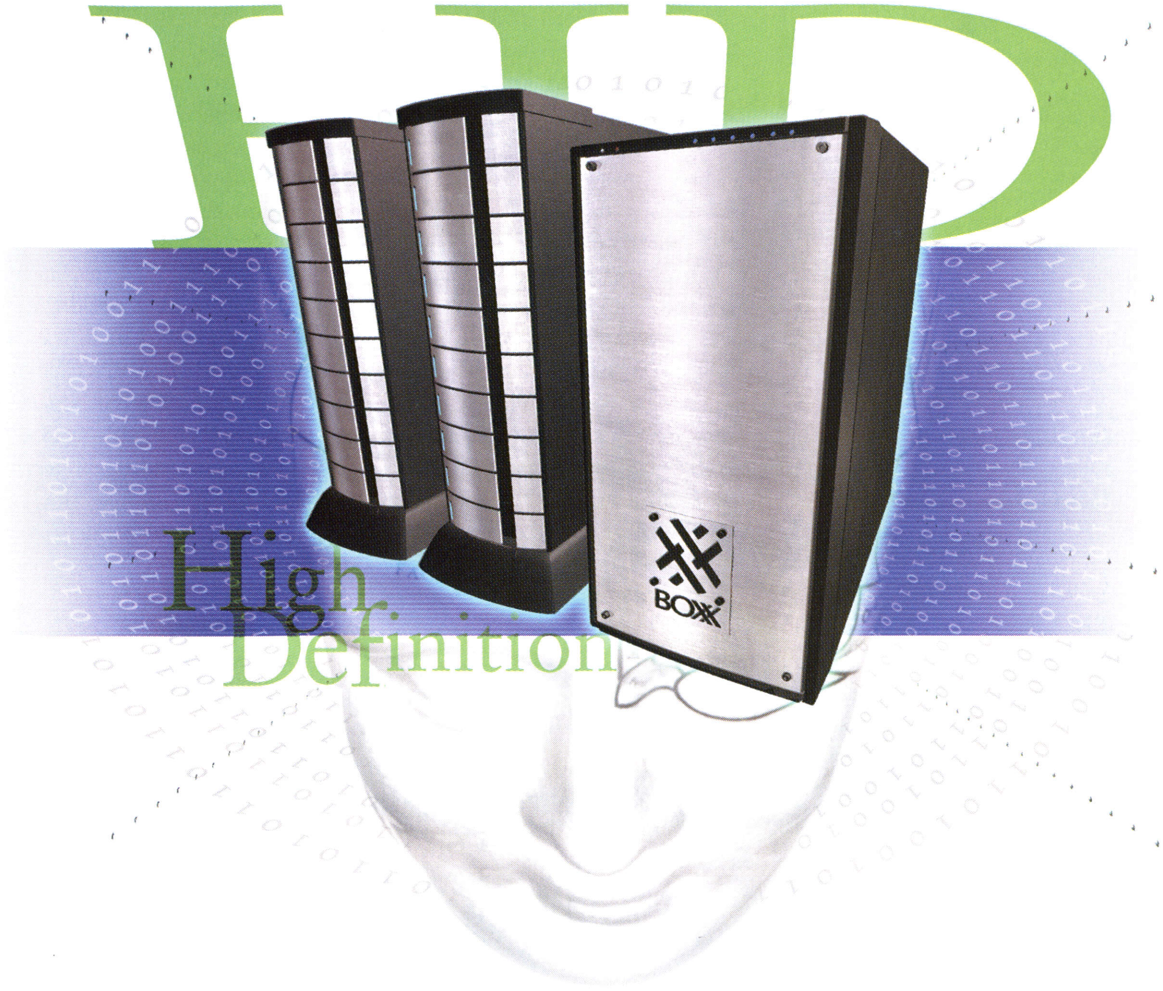

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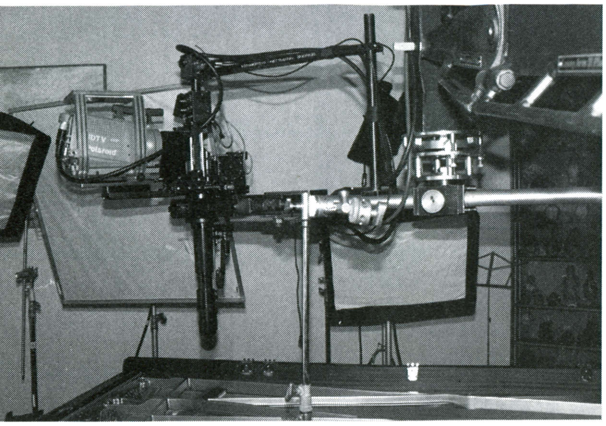

Lenses from a Hasselblad still camera had to be adapted for use with the HD camera because Primes wanted to use interchangeable lenses rather than a zoom. Clairmont Camera built the lens adapter, which was coupled with the Kenworthy/Nettmann snorkel-camera system.

with music, it's a bit harder," says Primes. To help himself, Primes created detailed charts so the script supervisor could mark down which parts of the music had been covered by different sequences.

Because Primes wanted to concentrate on directing and shot design rather than lighting, he left the bulk of the illumination to his talented gaffer, Marshall Adams, who used 1200-watt HMIs with Chimeras for diffusion. "It was simple soft light, no different than for film," he says.

For test purposes, Demos wanted to avoid using any electronic gain during the shoot, but Primes soon realized that with the amount of light he had available, he could not hold the depth of field he needed. As a result, he asked Demos to dial in about 6 Dbs of electronic gain, raising the effective f-stop to the 4.5-5.6 range. Primes kept his images totally clean, using no camera filtration.

Primes and Demos found that working with the new camera meant reinventing some of the most basic elements of production and postproduction. Some problems, of course, came from working in video, especially since no one involved with the project specialized in the format. Looking back, Primes admits that he would change two technical details. First, he says, there was a bit of electronic clipping in the whites that could have been avoided; second, the camera's sharpness control was turned on for one sequence, resulting in a video "ringing." He explains that while using the special camera, you don't have to add sharpness.

Editing was also a challenge. First, the HD original was downconverted to Beta SP, and Primes and editor Henry Miller III made an NTSC version of the cut, which was later onlined and color-corrected. No equipment existed to edit the HD version, though, so DemoGraFX pieced together an editing setup using a Viewgraphics system on SGI workstations. "Gary [Demos] built the first progressive-scan post facility," says Primes. Demos used the list

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of edits from the Avid, along with the Beta version, as a reference, and painstakingly re-created the cut, inserting transitions, flopping images and doing some color-correction. "Every time, they had to write a program," says Primes.

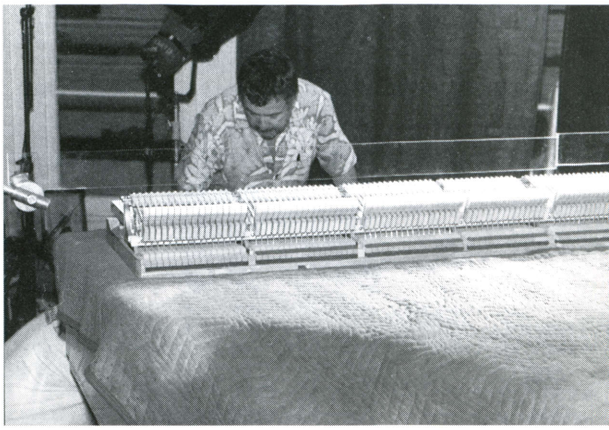
Some of the shots in *Theo Plays Chopin* are exactly the kinds of images that are the hardest to accomplish on video, such as diagonal raking shots across piano strings, which are themselves diagonally wound with smaller wires. "You could not ask for something more demanding for NTSC," says Primes.

Certainly, the NTSC version of the piece shows all of the artifacts that one might expect, but the high-definition version is free of these distractions. According to Primes, this is partly because the images are progressive rather than interlaced. Like Demos and Gerovac, he is a strong advocate of progressive scan, and believes that all digital formats will eventually be progressive. In the meantime, he says, interlaced seems to be dominant.

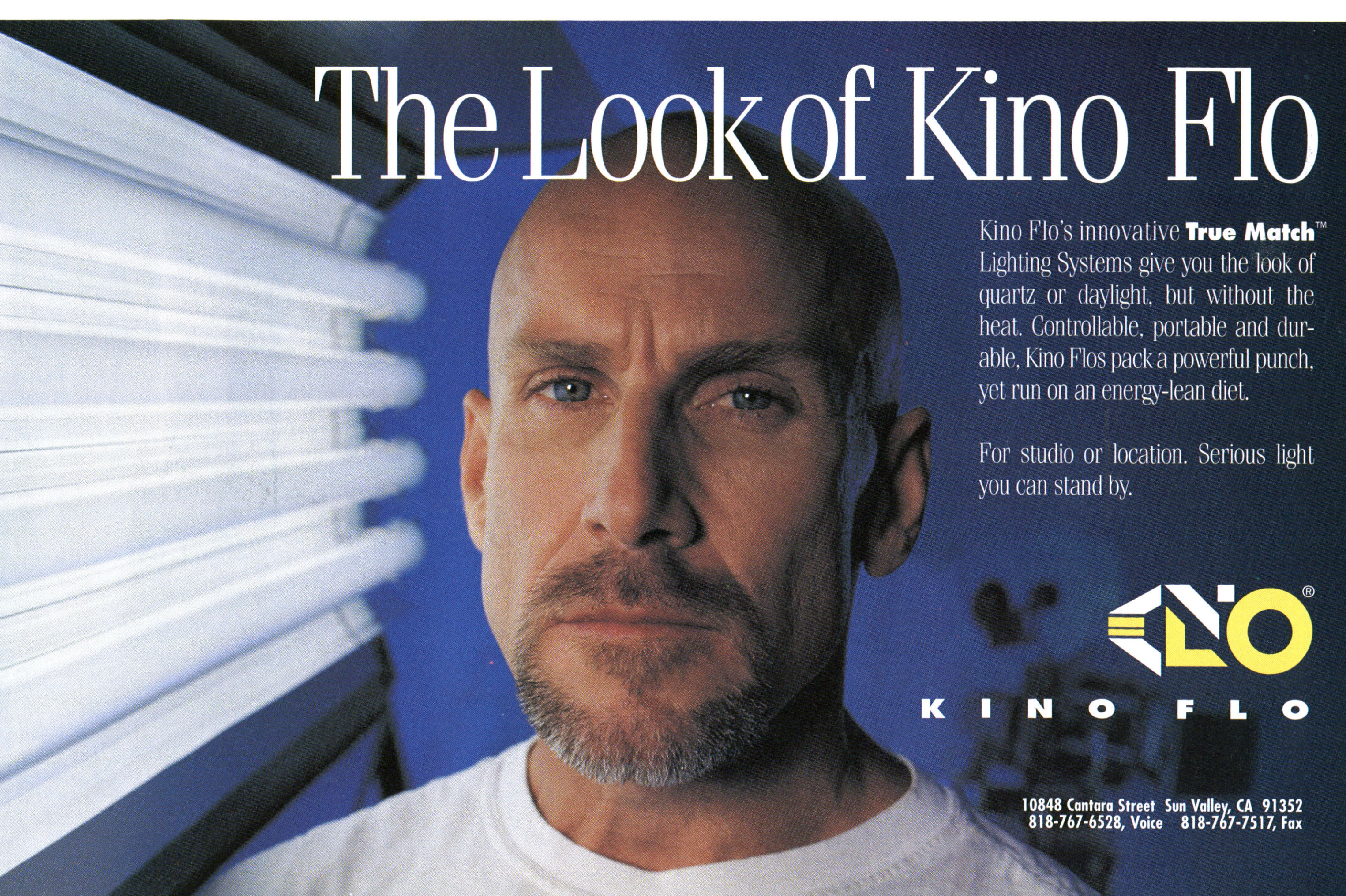
The most surprising discovery that emerged from *Theo Plays Chopin* concerned frame rate and how much it affected the image. "A higher frame rate was much more important than we thought," says Demos. "One of the reasons we have begun to take such a strong interest in 72 frames per second was our experience with this project. The moral to this story is that frame rate affects the clarity far more than resolution." Demos says that a new 72 fps version of the MIT/Philips/Polaroid camera will soon be available, and that DemoGraFX will take part in testing it.

Primes points out that even with film cameras, 24 fps is not necessarily the best idea. "It's amazing that we shoot everything at 24 frames per second," he maintains. "I think the sampling rate is much too low; it doesn't conform to human vision. The 60 fps camera — or, even better, the 72 — gives you far more freedom. It gives you a more real, lifelike experience."

Of course, shooting at higher speeds means using more stock — at 72 fps, for example, three times as much as usual. With film, the added



Primes prepares for a shot at a piano that's had its hammers removed. In order to capture the hammers hitting the strings, Primes had a Yamaha expert replace the strings with a sheet of Plexiglas.



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expense is considerable. Furthermore, adds Primes, the magazines that hold the film would have to be prohibitively large for higher-speed work, and the movement of the camera itself would be very noisy. “There are a lot of mechanical reasons why it doesn’t work in film,” he says, adding that electronic capture eliminates many of those reasons. “I think the next big breakthrough in quality should be a higher frame rate.”

He points out that with digital exhibition formats, the frame rate could actually vary in a given piece. Different looks could be created not only with lighting or filtration, but also with variable frame rates, which could be used to make the image noticeably sharper at specific times.

Nevertheless, Primes stresses that technical advances, while important, are only part of the artistic process. “It’s a very good, academic question: Do these technical improvements lead to better art?” he asks. He points out while the history of film is a history of limitations, these restrictions have never prevented filmmakers from making great films. “Twenty-four frames per second is a limitation. Black-and-white is a limitation. But we made art forms out of them.”

For Primes, the true advantage of digital technology — encompassing not only HD cameras, but also digital projection and other advances — is the possibility that people will finally see cinematographers’ work as it was intended to be shown, and will perhaps acquire a new appreciation for the craft. “I’d love for everyone to get the same emotional euphoria, and the same depth and energy [from digital media] that we get by going to the movies,” he says. “Rather than being the death of film, these new technologies will give audiences the opportunity to better see and appreciate our art form.” ■

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Sundance 2000: Variety Is the Spice

This year, Park City, Utah, played host to a festival that featured a truly eclectic selection of films — as well as an inordinate amount of hype.

by Marie Mirchevsky, Lucy Nicholson, Jean Oppenheimer, Beth Pinsker, Pat Thomson and David Williams

Amid the current (and seemingly endless) Age of Hype, the Sundance Film Festival has become a veritable Ground Zero for publicists and promoters of all stripes. Annual visitors to the wintry playground of Park City, Utah, are bombarded with a blizzard of indie-film propaganda, ranging from high-end lures (nonstop cocktails at celebrity-studded parties sponsored by major P.R. firms), to standard-issue fare (logo-laden T-shirts and winter caps) and far humbler forms of hucksterism (amateur flacks cruising Main Street in sandwich boards).

Naturally, all of this effort is expended on behalf of filmmakers who hope that their entries will become the Next Big Thing — a sensation on the order of *Reservoir Dogs,* π or *The Blair Witch Project.* This year, the honor for Best Buzz undoubtedly went to *Girlfight,* Karyn Kusama's two-fisted tale of a feisty Latina from Brooklyn who becomes her gym's first female boxing champion. The groundswell of support for the film began building after its first few screenings and carried Kusama all the way to the awards podium, where she shared the Grand Jury Prize for drama with the director of *You Can Count On Me,* Kenneth Lonergan.

Admirably, the new millennium's first Sundance fest served up a truly wide-ranging slate of films. Those we've chosen to cover run the full gamut; in addition to *Girlfight,* they include stories about a well-heeled Wall Street serial killer (*American Psycho*); prison inmates seeking to protect themselves from predatory assaults (*Animal Factory*); cinema's early days in China (*Shadow Magic*); a wacky wife who stalks her husband across America (*Committed*); and sleazy stockbrokers who will do anything to make a buck (*Boiler Room*).

Of course, it takes a hardy soul (and some serious on-the-job savvy) to master the nuances of Sundance: scoring "hard tickets" and laminated passes to the hottest screenings and Schmooze-a-Thons; sniffing out free booze and buffets; enduring 10 days of near-total sleep deprivation; prying coherent interviews from equally punch-drunk filmmakers; and, when necessary, cajoling one's way past large, implacable doormen. Our intrepid team of writers conquered all of these challenges, and the fruits of their labors can be read in the following pages.

— Stephen Pizzello

Girlfight

Director: Karyn Kusama
Cinematographer: Patrick Cady

Diana (Michelle Rodriguez), the streetwise heroine of *Girlfight,* is a fiery high-school senior with an attitude that often gets her in trouble. The restless teenager lives in a housing project in Red Hook, Brooklyn, with her brother and single dad. One day, while running an errand, Diana finds herself in one of the area's famous boxing gyms. The sight of the sparring boxers fascinates her, and when her father pays a local trainer to give his son boxing lessons, Diana asks for them, too. Her father refuses, but Diana strikes a deal with the trainer, who has an eye for a good athlete. Under his guidance and tutelage, she secretly begins a vigorous training regimen.

When Diana becomes the gym's first female champion, her secret is exposed, sparking a father-daughter conflict. She continues to battle her opponents in the ring with fearless determination, until she discovers that her next big fight will be against the promising male boxer whom she loves. In addition to the physical challenge of fighting a skilled opponent, she faces the emotional challenge of fighting her lover. For someone like Diana, who fights to win, this conflict also becomes a struggle with herself.

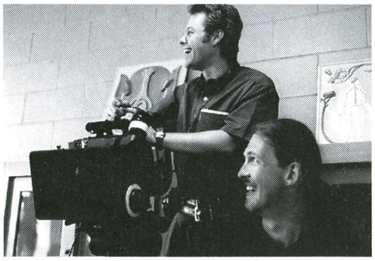
Girlfight transcends the sports movie genre, the coming-of-age story and even the love story. In director Karyn Kusama's words, the film is about "one young woman's search for self-respect and for love, but she does not get love without first getting self-respect. So the struggle is to find meaning for herself and in her life, and to her, the means for that is the sport of boxing — and the transformation that occurs when she becomes an athlete."

Kusama began boxing several years ago, initially just to get in shape. "It's such a great physical workout," she says. "It's so visceral and aggressive, and it's a great way to sort of blow off steam. Also, I think I wanted to change my life a little bit and experience new things." She became friendly with several regulars she met at a Brooklyn gym. "I felt as if I became sort of a spy in the boxing world, and I was welcomed into it. I wanted to see a story in that world, because it is so complex and filled with so many diverse characters.

Although powerful females may frighten some men, the key male member of the *Girlfight* team, cinematographer Patrick Cady, welcomed the strength of his female collaborators. Balancing the idea of power with subtle but solid camera work, Cady creates a dynamic poetry of shades and color for *Girlfight*'s world. "Patrick is a great cinematographer who's going to do great things," Kusama testifies. "He's extremely easygoing, but tenacious and very, very meticulous — very organized behind the camera. He would do things in the most beautiful and efficient way. He really pulled off a miracle in shooting this movie, because we had so little time and not a ton of resources."

Cady began his career when he took five weeks off from his graduate studies at New York University to be a camera intern for Roger Deakins, ASC, on the John Sayles film *Passion Fish*. (Sayles served as an executive producer on *Girlfight*.) "It was heaven," Cady says of his stint on *Passion Fish*. "That was the first time I was on a set, really learning about the camera. I learned so much just by watching Roger; he's a great director of photography."

Top photo by Abbot Genser, courtesy of Screen Gems; bottom photo courtesy of Patrick Cady.



Left: In *Girlfight,* Michelle Rodriguez plays Diana, a streetwise Brooklyn teen who becomes her gym's first female boxing champ. Below: Director of photography Patrick Cady (at camera) enjoys the action on the set.

Cady first met Kusama in New York several years ago, when she was considering hiring him to shoot her first feature; the project didn't get funded. When Kusama changed gears and decided to move ahead with *Girlfight,* she took the script to Cady because "he had a great ease with people and great openness to ideas," she recalls. Cady loved the script and says he couldn't believe "how complete it was and how very quickly it moved."

Faced with a limited budget and a short shooting schedule, Cady and Kusama began storyboarding the film three months before shooting. "We were able to storyboard for several weeks and create a very distinct plan about how to handle the film visually, literally shot by shot," Kusama says. "It was such a demanding schedule that we had to examine what we wanted from every scene. I always knew that we would need a very clear plan of attack." Cady and Kusama went through every scene and decided how to cover it to best reveal the story to the audience. After drawing out each shot, they often came up with a second plan — and in some cases, even a third — in case they didn't have time to get the shots they preferred.

The filmmakers had 24 shooting days in which to achieve their vision. For nine of those days, they had a B-camera unit, whose camera was operated by either Patrick Donnelly or first assistant cameraman John McAleer. A Moviecam Compact served as the main camera for the shoot, and Cady also used a Moviecam SL, an Arri 3, an Arri 435 and an Arri 535B as replacement A or B cameras. The cinematographer used a mixture of handheld cameras, long lenses and — because of budget restraints — more zooms for motion within the shots than he had ever used before.

The visual strategy for the fight scenes was to bring the audience progressively closer to each fight. While preparing for the shoot, Cady watched both boxing movies and real boxing matches. "Of course, I rented and watched every boxing movie I could, including *Fat City* and *Raging Bull*, just to see what worked," he says. "Then we realized we had a bigger problem: in those films, boxing is only on the screen for a total of 10 or 15 minutes. We had a fight or sparring sequence *starting* every 10 or 15 minutes. We wanted the audience to go from outside [the story] to inside, and we also needed each fight to reflect Diana's increasing skill as a boxer."

As Diana pursues her career in the ring, the close-ups become tighter and more intense. During her first serious bout, against a character called Ricky Styles, the fighters begin punching straight at the camera. Cady and Kusama had considered increasing the film's intensity by letting their actors actually hit a padded camera, but they knew they couldn't risk damaging any equipment. Cady recalls, "One day, Manny Saviero, the stunt coordinator, put a big pad on me and said, 'Now they can hit you.'"

That invention was the solution. "In those POV shots, when it looks as if the fighters are throwing body shots, they were really hitting me," Cady says. "The pad was pretty thick, so I could really lean into it. It made the camera move in such an honest way — especially in the Ricky Styles fight, because Ricky was a professional boxer and Michelle was so well-trained that I could trust them and tell them, 'You can hit close to the lens, just an inch away from the matte box.'"

At times, the escalating rhythm of the camerawork slows down for poetic pauses to reflect quiet, intimate moments in the story. One such shot occurs just before Diana's final fight, when she has a private moment with her trainer. The foreground, where the two characters face each other, is dark, and their faces are barely visible. The brightly lit section of the shot is the boxing ring far behind them. This reversed perspective creates a contrast between the intimacy of Diana's relationship with her trainer and the glitter of the big world she's about to enter. Cady details, "For the boxers behind them, we used 1500-watt scoop lights. We backlit Diana and her trainer using a 2K Baby Junior. To outline their dark silhouettes with light, we placed a large, silver board on the floor behind them; it caught the light pointed at them, reflecting it upwards. So the backlight came from above and below, etching them out."

During the whole shoot, the biggest light the crew used was a Baby 5K. The bulk of lighting consisted of Kino Flos pre-rigged in the gymnasium location and used as key and fill throughout the shoot. The crew's only HMI was a 400-watt Joker Par. For a few scenes, Cady used an ACL rig with an additional light for "sunlight." The crew also made creative use of paper lanterns, bare bulbs, household fixtures and hardware-store lighting.

Early on, Cady and Kusama decided that they wanted their film stock to have a *French Connection*-type look, as though the footage had been captured for an older movie. Cady shot tests with the old Fuji 500, the new Fuji 500, and Kodak's Vision 500T and 800T stocks, push-processing everything by two stops at Technicolor in New York. The filmmakers ultimately opted for the older

SUNDANCE 2000 AWARD WINNERS

GRAND JURY PRIZE:

Drama: (tie) *Girlfight*, produced by Sarah Green, Martha Griffin, Caroline Kaplan, Maggie Renzi, John Sayles and Jonathan Sehring; directed by Karyn Kusama. *You Can Count on Me*, produced by Steve Carlis, Donald C. Carter, Barbara De Fina, John Hart, Larry Meistrich, Martin Scorsese, Jeff Sharp and Morton Swinsky; directed by Kenneth Lonergan.

Documentary: *Long Night's Journey Into Day*, produced by Frances Reid; directed by Frances Reid and Deborah Hoffmann.

CINEMATOGRAPHY:

Drama: *Committed*, Tom Krueger.

Documentary: (tie) *Americanos: Latino Life in the United States*, Andrew Young; *Dark Days*, Marc Singer.

DIRECTING:

Drama: Karyn Kusama, *Girlfight*.

Documentary: Rob Epstein and Jeffrey Friedman, *Paragraph 175*.

SPECIAL JURY PRIZES:

Artistic Achievement: *The Ballad of Ramblin' Jack*, directed by Aiyana Elliot.

Writing for Documentary: *George Wallace: Settin' the Woods on Fire*, Daniel McCabe, Paul Stekler and Steve Fayer, based on *The Politics of Rage* by Dan Carter.

Outstanding Ensemble Performance: Janet McTeer, Aidan Quinn, Pat Carroll, Jane Adams, Gregory Cook and Iris Dement, *Songcatcher*.

Outstanding Performance: Donal Logue, *The Tao of Steve*.

WALDO SALT SCREENWRITING AWARD:

You Can Count on Me, Kenneth Lonergan.

FREEDOM OF EXPRESSION AWARD:

Dark Days, Marc Singer.

JURY PRIZE FOR SHORT FILMMAKING:

Five Feet High and Rising, Peter Sollett.

JURY PRIZE FOR LATIN AMERICAN CINEMA:

(tie) *Herod's Law* (Mexico), produced by Luis Estrada and Sandra Solares; directed by Luis Estrada. *No One Writes to the Colonel* (Mexico), produced by Mariela Besuievsky, Laura Imperiale and Jorge Sánchez; directed by Arturo Ripstein.

AUDIENCE AWARDS:

Drama: *Two Family House*, produced by Anne Harrison and Alan Klingenstein; directed by Raymond DeFelitta.

Documentary: *Dark Days*, produced by Ben Freedman and Marc Singer; directed by Marc Singer.

World Cinema: *Saving Grace*, produced by Mark Crowdy, Xavier Marchand and Cat Villiers; directed by Nigel Cole.

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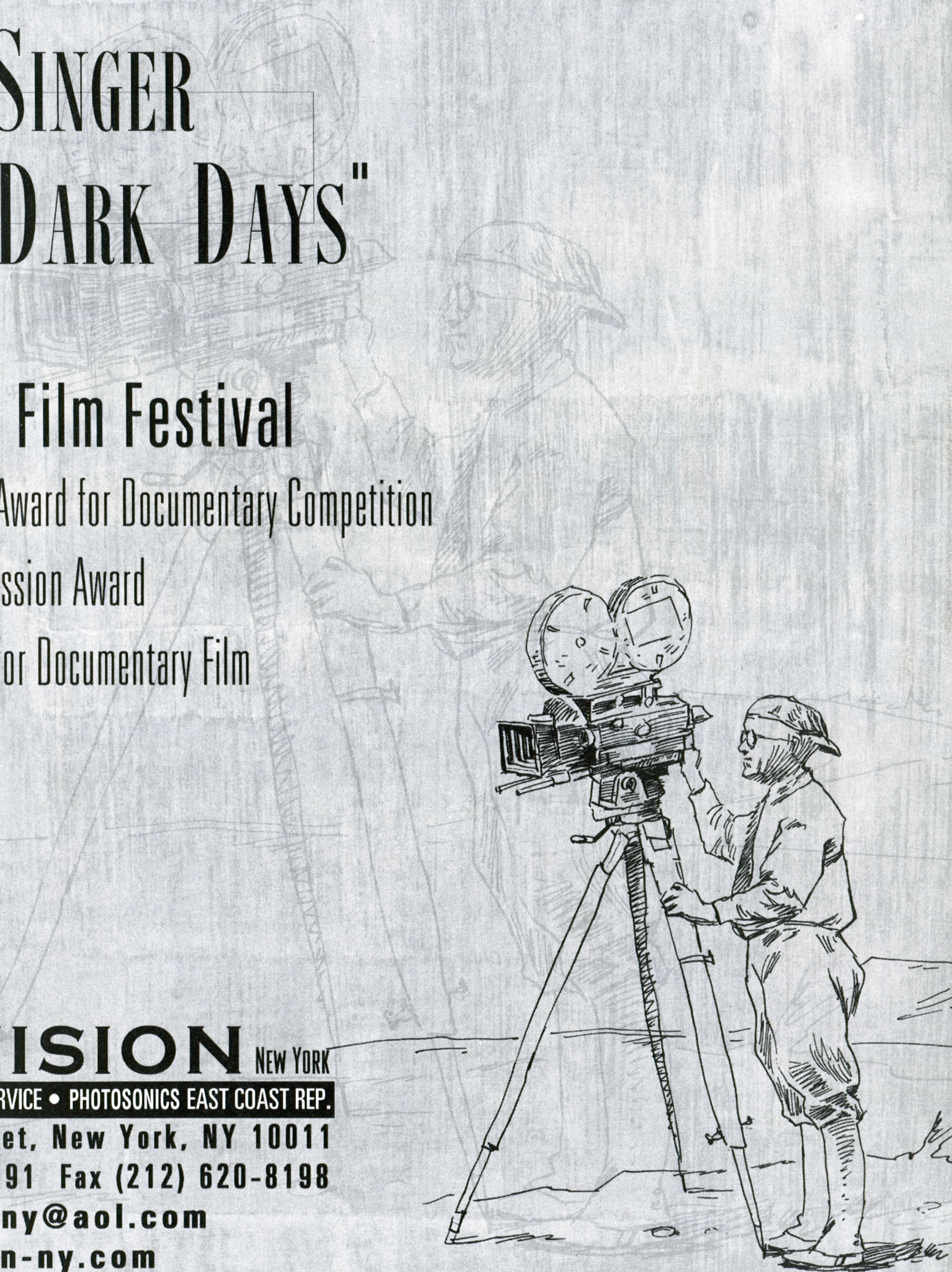

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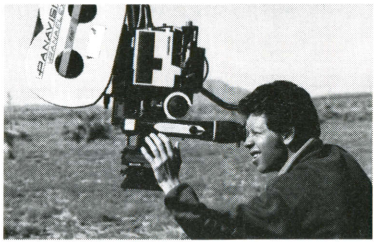
Sundance 2000: Variety Is the Spice

Fuji 500 stock, which tested well and was available at large discounts because it had been discontinued. They bought 112,000 feet of film, all of which was available only in 400' 35mm rolls. Cady recalls, "At the time, it was the last batch of that particular stock in North America. The final step was to push-process the entire film two stops while rating it at 1200 ASA, which decreased the latitude. [Gaffer] Kate Phelan and I had stickers on our spot meters to remind us how quickly we would lose detail in the shadows and highlights. We both used Pentax Digital Spot meters and referred to charts using those meters' EV system.

"Essentially, the stock had a range of only 3 ⅔ stops from the last vestige of highlight detail to the last vestige of shadow detail. By rating the stock at 1200 ASA instead of 2000, I was saturating the information that was making it onto the film. My biggest concern was that the shadows could become too washed-out; I felt that the way to remedy this was to have very high printing numbers, guaranteeing that any buildup of density caused by the overprocessing of negative area with no detail would be crushed down into richer black tones. Similar results may be achieved through ENR or bleach-bypass, but those processes seemed too modern for the look we wanted, and they would have been too expensive for our budget. A final step that helped a great deal was releasing the film on Kodak Vision stock; the contrast of the stock helped."

Girlfight tied *You Can Count On Me* for the Grand Jury Prize at Sundance, making Kusama the first woman ever to win both best picture and best director prizes at the festival. "It felt like many years of struggle had finally paid off," she concludes. "I'm just hoping people go to see it because they want something fresh and different."

— Marie Mirchevsky



Right, top: Heather Graham plays a wife stalking her wayward husband in *Committed.* Bottom: Tom Krueger lines up a shot in the desert.

Photos by Rico Torres and John P. Johnson, courtesy of Miramax Films.

Committed

Director: Lisa Krueger
Cinematographer: Tom Krueger

"Restrained, objective camerawork" is what Tom Krueger thinks caught the attention of this year's Sundance jury, which selected him to receive the festival's cinematography award for his work on *Committed.*

The film tracks an intense, distraught wife named Joline (Heather Graham) as she stalks her wayward husband (Luke Wilson) from New York to El Paso. Krueger thought it best to let the characters run wild in a world of their own making, and to allow the camera to simply observe their antics. "There's a line which often gets crossed, where the camera becomes too forceful and contrived — [where] the cinematographer uses the camera to force the story on the audience, instead of having the confidence to pull back and let the characters do it themselves," the cinematographer maintains. "What I like most about *Committed* is that we used light, color and art direction in many subtle ways that most viewers will not even consciously be aware of, while still allowing those factors to enhance the story."

That said, of course, Krueger was still able to bring his photographic knowledge and experience to the table. He's familiar with all the tools of the trade, and has used every known trick as a prolific music-video and commercial cameraman. He has also worked on documentaries all over the world, and gained valuable training on *60 Minutes* under the mentorship of producer Lowell Bergman (currently played by Al Pacino in *The Insider*). Krueger is also about to direct his own feature film, *Fishtail*, for Good Machine.

On the set of *Committed*, he worked closely with director Lisa Krueger — who also happens to be his sister. The duo had also worked together on her previous feature, *Manny and Lo*. "Communication is key," Tom says, "and it really helped that we know each other so well. Sometimes just a simple, childhood reference — or even a look — was all that I needed to know exactly what she wanted.

"When you're working on a film, you have to close your eyes and try to see the big picture as often as possible," he adds. "When you're shooting over the course of several

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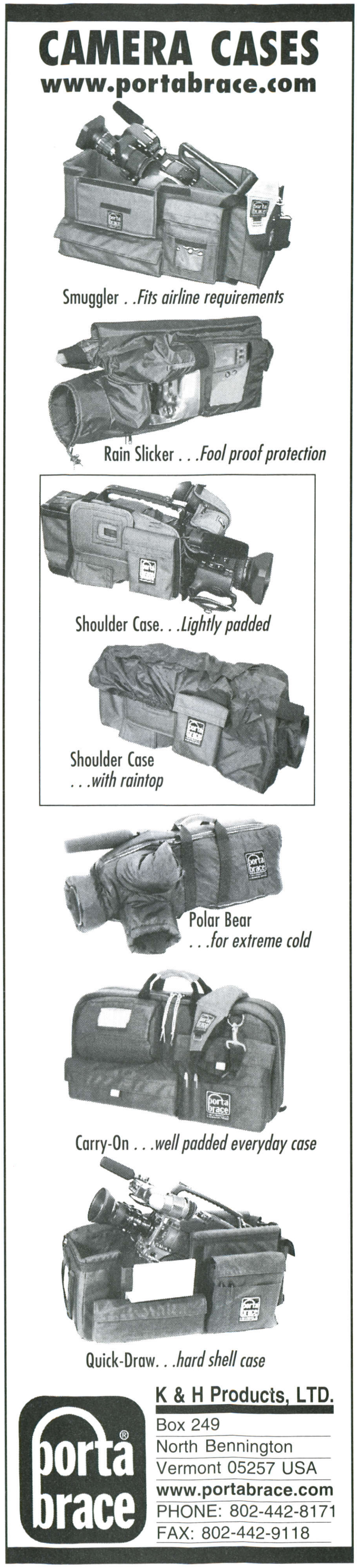
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months, it's very easy to lose track of the big picture and start forcing the camera on the story. You have trust the director and the script, and know that the story will come through in the final edit."

Committed begins in New York, where Joline is buzzing happily along in her job as a nightclub manager. When her husband, Carl, leaves her, she is overcome with confusion and anguish and begins struggling with the meaning of her marital vows. The Kruegers worked with production designer Sharon Lomofski to ensure that the film's sets and colors meshed with Joline's moods. Says Tom, "In New York, we stuck to grays, blacks and blues, and we made the lighting as artificial and contrasty as possible, never using soft, naturalistic lighting. That really helped to further enhance the cold, lonely feeling of Joline's superficial world."

Shooting in very low light levels, Krueger recorded his images on Kodak's Vision 500T 5279 stock, which offered "deep color saturation and smooth grain." He chose Panavision's Primo lenses because they "handle practical lighting so much better than most lenses. They have this beautiful glow, without flaring and washing out the rest of the image."

Once Joline hits the Texas desert, everything changes, and she begins her spiritual journey. Krueger therefore shifted to warmer tones and a softer, more naturalistic quality of light. "Heather's wardrobe went from artificial colors with hard lines to more earthy colors and patterns," he explains. "Even her hair and makeup slowly became softer and warmer." He only shifted back to the colder colors of New York when the characters or situation called for it. "Every time Joline fell back into her New York ways, especially when she dealt with her husband, the light would represent that cold loneliness. Carl's world was always blue, gray and black, whereas Joline's world was always red, golden and soft."

When Krueger got to postproduction, his main objective was to keep the contrast deep and sharp. Rather than using a bleach-bypass process, he and Deluxe color timer Jim Passon chose to print on Kodak's Vision Premiere stock, because "it has those deep, rich blacks, and it really enhances the color saturation rather then depleting it."

Other than a couple of car wrecks, *Committed* is not big on special effects. However, several times in the film, Krueger used what he refers to as "supernatural" lighting to illuminate certain elements of the story. "There were these moments when I'd slowly fade up a light on a particular element within the scene. It was totally unjustified, yet it would allow the audience to see something that the other characters might not be aware of. After a few seconds, I would justify it with the headlights of, say, an approaching car. Those are the kind of tricks I love, but not too many moviegoers will to notice them."

The only other unusual technique Krueger applied was to use time-lapse photography to mark Joline's slow decent into madness. "There's a point in the film where she just wanders off into the desert," he notes. "We needed a way to show that her grip on reality was slowly slipping away, and that time was no longer what it used to be. With time-lapse, the desert really took on a life of its own, as if spirits were flying all around her."

The cameraman says that the weather during these scenes was the most challenging aspect of the shoot: "We were hammered by one hurricane after the next. In foul weather, the desert is a drab mix of brown and gray, with minimal contrast and an ugly, white sky; when it's sunny, you have beautiful contrast with reddish-gold sand and big blue skies.

"The poor art department would scramble to get a cover set

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ready, and we'd pray for better weather the next day. But it just wouldn't let up, and we ran out of interior sets with nearly two weeks of shooting to go. When we just couldn't wait any longer, I'd raise up the camera to frame out the sky and march those lights in as close as I could get them. There were times when I'd peek out from the eyepiece to see four or more grips holding onto gel frames to keep them from rattling in the wind."

Hurricane Mitch, in particular, turned the desert location area into a danger zone. "When we heard the tornado warnings coming over the walkie-talkies, we'd throw everything into the trucks and vans as fast as we could and race to a shelter about a mile away," Krueger recalls. "The tornado would rip through, dropping hail the size of golf balls on everything. All of our cars, including our picture cars, had little dents in them, as if some disgruntled neighbor had run through the set with a ball-peen hammer. You don't get those glorious skies for nothing, though. In the end, I guess it was a price I was willing to pay."

—Beth Pinsker

American Psycho
Director: Mary Harron
Cinematographer: Andrzej Sekula

The love-it-or-hate-it entry at this year's Sundance Festival was *American Psycho*, based on bad-boy author Bret Easton Ellis's controversial 1991 novel about Patrick Bateman, a young Wall Street trader with a penchant for designer suits, trendy restaurants and unusually ugly acts of homicide — including the maiming and mutilation of women. The novel's defenders praised it as a biting satire about the greed and narcissism of the yuppified 1980s. Certainly, that is how writer/director Mary Harron (*I Shot Andy Warhol*) and co-writer Guinevere Turner elected to play it in their screen adaptation. "It's not a naturalistic story; it's a black comedy," asserts Harron, who kept the book's explicit violence offscreen.

Wall Street serial killer Patrick Bateman (Christian Bale) engineers a ménage à trois with an escort and a streetwalker. Bottom: Director Mary Harron and Bale discuss Bateman's next move.

Photos by Kerry Hayes, courtesy of Lions Gate Films.

That didn't seem to matter to protesters in Toronto (which was standing in for Manhattan), who raised such a fuss over the film being shot there that just days before production was to commence, several promised shooting sites suddenly became unavailable. The 11th-hour cancellations proved a blessing in disguise for cinematographer Andrzej Sekula (*Reservoir Dogs*, *Pulp Fiction*, *Hackers*, *Cousin Bette*), because a set offers far more control than almost any practical location.

This proved especially true when it came to one of the film's key locations: the high-rise office where Bateman (Christian Bale) plies his unspecified trade. "Nearly 30 percent of the film takes place in Bateman's office, and it would have been impossible to light or move the camera around the way we wanted to at a practical location," Sekula concedes. "We built panels in the ceiling, and above the panel we built a grid from which lights could be lowered. I could pull the lights back up and close the panels when the camera showed the ceiling in the shot, which happened frequently because I used a lot of wide-angle lenses."

Small units adorned the grid: 575s, 1200s and 2500s. Primary light for the set, however, came from 18Ks placed outside the window to simulate the sun. Sekula credits gaffer Franco Tata and grip Chris Faulkner with designing an elaborate system for positioning the lights. "We couldn't [position lamps directly] outside the window because they would show in the shot," explains Tata, speaking from his home in Toronto. "Instead, we suspended the 18Ks from an 80-foot-long box truss, just above the frame line. Because each 18K with cables weighs about 200 pounds — and we were using six to eight of them — we had to suspend the truss with chains and motors. A remote switch allowed us to raise and lower the lights and manipulate them at our discretion. It worked amazingly well, because it allowed Andrzej to do the shots he wanted, which included a lot of 180s."

For a scene in which a police helicopter shines a light into Bateman's office window, an electrician sat on a wooden platform that had been built onto the truss and manually jostled a 6K CinePar. "We

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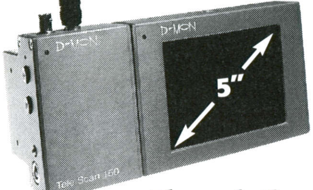

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couldn't afford to hire a helicopter, but by shining a light through the window and adding the sound of one, we conveyed that Bateman was on the run from the police," says Sekula.

An 80'-long TransLite of the New York skyline was hung outside the window. Actually, two TransLites were employed on the picture: the first was a day scene, and the second was the same scene at night. The box truss was positioned between the TransLite and the window. Another six 18Ks were set up behind the TransLite. These were turned on for both day and nighttime sequences. However, only one or two of the lights on the box truss were employed for the night sequences. Full CTO gels were added to all of the HMIs for the filming of night scenes.

Like many cameramen, the Polish-born Sekula came to cinematography via still photography. Repeatedly denied admission to film school in Poland (during the 1970s, political connections frequently counted more than talent), he was accepted at Britain's prestigious National Film School. A year after graduating, he hooked up with a first-time American director named Quentin Tarantino.

Harron had admired Sekula's work with Tarantino, and told him she wanted a similarly hyper-realistic look — very bright and crisp, with deep focus. "In a way, I wanted the antithesis of the David Fincher school of photography, which is very imitated right now," she explains. "In Fincher's films, it's very murky, kind of Gothic. But it's not right for black comedy, where you want everything to be really crisp."

That suited her director of photography just fine. "If images are clear, they become three-dimensional," he notes. "People say *Reservoir Dogs* is very violent. It is, but the violence makes such an impression because the screen is so sharp."

Sekula used the same film stock on *American Psycho* that he had employed on *Reservoir Dogs:* the 50 ASA Kodak EXR 5245. (He also used Vision 250D 5246 for a couple of short driving sequences.) He shot both pictures in Super 35. "When you use Super 35, the film becomes one big optical, so it's really important to have good image quality," he cautions. "That's one reason I used a slow stock. With 5245, I get maximum sharpness, best color saturation and the smallest grain. If you use faster film, the grain becomes huge in the post optical."

Sekula opted for Super 35 over anamorphic mainly because spherical lenses offer greater depth of field. He intended to use wide-angle lenses as much as possible to help attain a three-dimensional look. "Even when shooting tight, I used wide-angle lenses [primarily 17.5mm, 21mm and 24mm], because you see much more of the background and it is still in focus. I shot at around T4; that way, even when forgoing a strict POV from the actor's perspective, you still get a sense of the surroundings, which helps show how the characters relate to their environment."

The camera package consisted of two Platinums, a set of Primo primes and a Primo 4:1 17mm-75mm zoom. "Panavision has superior lenses, with minimum distortion," the cinematographer enthuses. "Even their 14.5mm has almost no distortion."

The slow stock required a lot of light, and Sekula relied heavily on HMIs, often balanced with half CTOs to warm them up a bit. The most colorful scene was a wild nightclub sequence (set in the larger of the two nightclubs Bateman visits), which got its pronounced red hue from Primary Red (Lee 26) and Yellow (104) gels mounted on 6K CinePars and 18Ks. (The cameraman lent the second nightclub a bluish tint by substituting Peacock (Lee 115), medium Blue-Green

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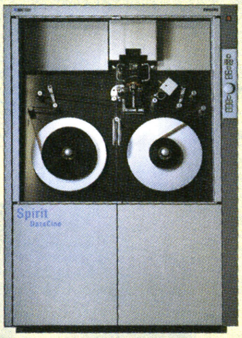

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(116) and dark Yellow-Green (090) gels.) Putting gels on 18Ks isn't easy because they have a tendency to burn through, but Canadian rental houses stock a kind of frame holder called a Dumb-Dumb, which attaches to the ears of the light and extends the frame so it sits out three or four feet from the lens.

For the larger nightclub sequence, the camera was mounted on a Titan crane and aimed down at the tops of the dancers' heads, and then tilted up until it was level with a balcony where other patrons were sitting. A disco ball hung from the ceiling, with 6K Pars shining directly into it from the dance floor. (The lights were hidden by dancers.) For certain shots, the lights were positioned behind the camera, shining directly into the mirrored ball. Whenever the camera was moved for another setup, the ball was also moved. "We just went with bare bulbs, which makes the light extremely spotty and hard," recalls Tata. "Once the light hits the ball, however, it spreads light everywhere, producing a great mirror-ball effect. Normally, you would hit those balls with a much smaller light, but since Andrzej was shooting 50 ASA we needed four to eight times more light. We used everything we had."

The trickiest shot in the film was a short nighttime exterior sequence in which Bateman, pursued by police, exits from a high-rise and runs through an outdoor courtyard into a second building. Shot on a practical location in Toronto, the scene features skyscrapers visible in the distance between the two buildings. Even if the filmmakers had switched to faster film, which Sekula didn't want to do, there wouldn't have been enough light for exposure. "We'd have had to prolong the exposure, but if we'd done that, the figure of Bateman would have blurred," notes the cameraman. "Instead, I locked the camera on a tripod, covered the lower part of it with a piece of black foil stuck on with gaffer's tape — I just looked through the camera until Christian Bale was covered in the frame — and ran the film at one frame per second. After exposing the film like that, I rolled it back in the camera, removed the matte, lit Christian and the ground around him and ran the film again, this time at the normal 24 fps, as he ran across the courtyard. The camera remained locked." With a laugh, he adds, "If you focus really carefully at the distant windows, you will see some strange pulsing, but nobody will notice unless you say, 'Look at that particular spot.'"

Camera operator/second-unit director of photography Paul Boucher shot a fair portion of the film handheld while sitting on a dolly. Sekula explains that this technique "gave us the texture of handheld, but the movement was very smooth. The shots became more like POVs." The method was frequently employed just before and while Bateman committed a murder.

American Psycho is a dialogue-heavy film; several scenes find Bateman and two or three other characters sitting and talking in a restaurant, his apartment or his office. Harron didn't want a kinetic camera style, but Sekula tried to keep the camera moving in subtle ways by designing long, flowing tracking shots which gave the camera a kind of voyeuristic intensity. He acknowledges that few of those shots made it into the film intact.

In the end, Harron opted for an even more static style. "I wanted a cool tone," she explains. "I looked at a number of Kubrick and Polanski films from the 1970s, in which the stories were about unease in a space. You have a very composed, perfect surface, and then something frightening and uneasy happens within that world. It's about tension more than violence, and being static somehow makes it more nerve-wracking."

— Jean Oppenheimer ➢

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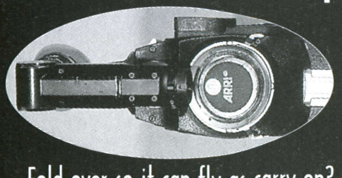

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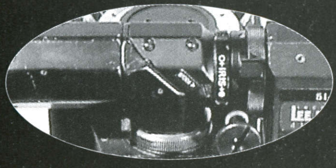

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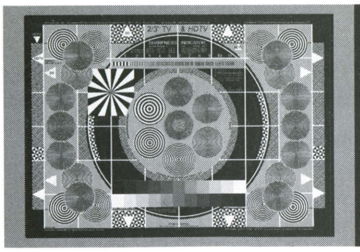

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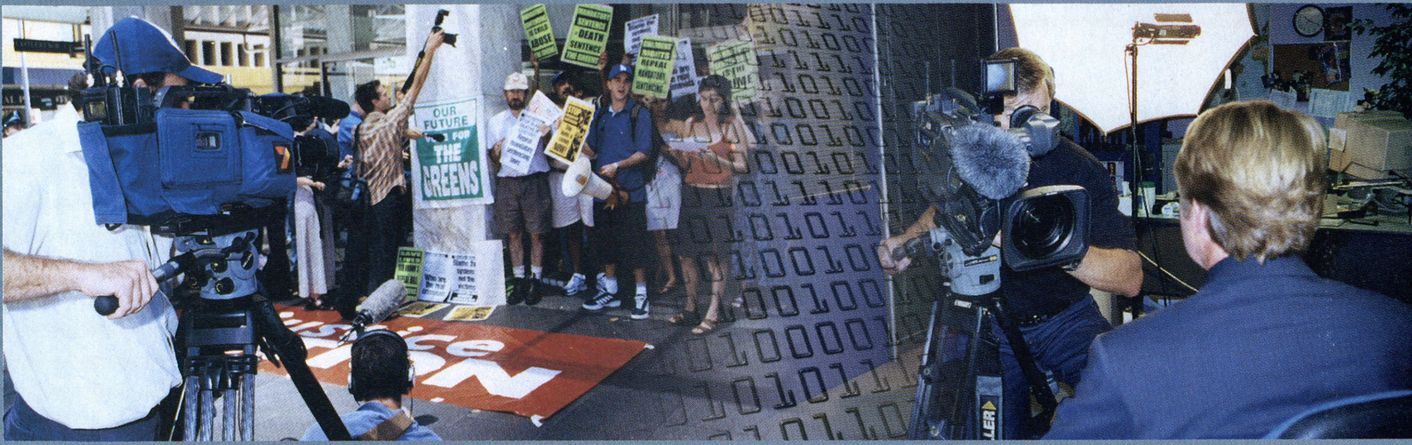
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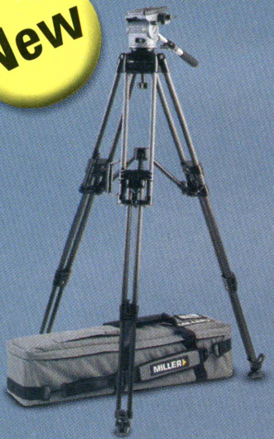

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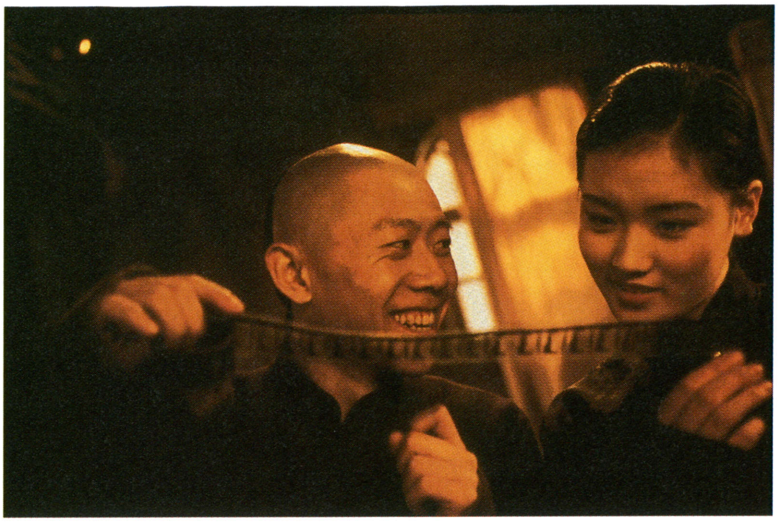


Near right: Liu Jingun (Xia Yu, left) and Tan Xiao (Xing Yufei) examine a strip of celluloid in *Shadow Magic*. Far right: Director Ann Hu (left) and cinematographer Nancy Schreiber, ASC on location in Beijing.

Shadow Magic
Director: Ann Hu
Cinematographer:
Nancy Schreiber, ASC

In American-accented Mandarin, Nancy Schreiber, ASC, rattles off the Chinese she learned while shooting in Beijing last year: "Boom up, boom down, dolly, one, two, three, four," she says with a smile. "I learned the numbers and letters, so if I needed an 85N6 filter, I knew I'd get what I asked for. It worked out."

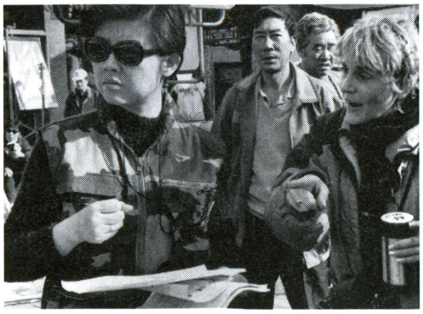
Indeed it did. The film that brought this veteran director of photography to Beijing was *Shadow Magic*, a period piece set during China's nickelodeon era. Cowritten and helmed by commodities trader-turned-filmmaker Ann Hu, this directorial debut was accepted into Sundance's American Spectrum section, where it landed a distribution deal with Sony Pictures Classics.

Notable for being the first coproduction between Taiwan's Central Motion Picture Corporation and China's Beijing Film Studio — as well as a German and American coproduction — *Shadow Magic* tells the story of cinema's arrival on the Chinese mainland. It is loosely based on the scant facts surrounding the life of Liu Zhong Lun, a photographer at the Feng Tai Photo Shop in Peking, who shot the first motion picture in China in 1905. The film begins in 1902 with the intersection of the ancient and the modern: a legendary Peking Opera star and his entourage arrive at a photo studio, where he will have his portrait taken. While the shot is being set up in a courtyard, the main photographer, Liu Jinglun (Xia Yu), is distracted in a back room cluttered with silvery Western gadgets — a phonograph, a zoetrope, a foil reflector prototype.

Soon, our forward-thinking photographer meets an itinerant British showman/cinematographer, Raymond Wallace (Jared Harris), who has come to town with the Lumiére brothers' films. Liu, immediately smitten with this "shadow magic," convinces the foreigner to take him on as an apprentice. A romantic subplot involving the opera singer's daughter develops, and the story culminates in an arts showdown of sorts, which unfolds before the Empress Dowager on her birthday and results in a disastrous (though temporary) setback for cinema when the projector explodes in flames — one of the film's fact-based scenes.

But more than historical research went into *Shadow Magic*; the film also includes actual archival footage. In fact, a fair share of the footage that survives from this period in China's history turns up in the film. As Hu discovered during her extensive research, there are only 17 existing film clips of China from before 1902 — all in Western archives, and all shot by anonymous foreigners such as the fictional Wallace, who comes to China to build his fortune by showing newsreel and vaudevillian films and to gather new and exotic footage.

Wallace's "footage" is, of course, a major prop in the film, and as the real author of these black-and-white snippets, Schreiber faced the task of emulating the antique look of the archival material. Choosing Kodak's 5222 black-and-white film stock and mimicking the static compositions of a tripod-bound camera, Schreiber says she filmed many of these scenes using three different camera speeds "because of the way one sees old movies, which always seem a bit jittery. We wanted to keep with the tradition that film speed was different in the old days."



The new black-and-white footage was then degraded, with scratches, dust and other artifacts added in post. Meanwhile, the lab also optically tweaked some of the Lumiéres' footage. That famous scene of the train pulling into the station, for instance, was enlarged, centered and speeded up a notch to make it appear more dramatic and more likely to send Chinese spectators diving out of their seats, just as audiences did all over the world.

The key to creating a consistent look for all the early footage, both real and re-created, was in the color-correction. All of the black-

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and-white footage was given the same bluish hue. In the film's overall color scheme, this echoes the silvery whites of the photo studio, and unites the modernist portion in a cool palette. In contrast, old-world China is rendered in amber tones, with sepia and golden sepia filters warming up the daylight exteriors, which were shot on Kodak's Vision 250D 5246; the interiors, shot with Vision 500T 5279, are filled with yellow torchlight that shimmers over the enameled wood and sequined opera costumes. As Hu explains, "This was a great opportunity to create the contrast between the ocean and the Yellow Earth civilizations."

Ironically, this contrast is not what Hu originally had in mind. The script indicates that the older footage would be sepia, not blue. Surprisingly, the revised color scheme can be traced back to one troublesome light: the projector beam needed for Wallace's nickelodeon, which had to be visible as a discrete shaft of light. "We couldn't get a bright enough projector," Schreiber recalls. "We found an HMI follow spot, but it turned out to very noisy because of its fan. But we came up with another light, [which] they found somewhere in China."

The "beam" had a distinctly blue tint, but Schreiber notes that "we could never gel it to make it tungsten orange, because we wouldn't have had enough light to photograph the scene. Instead, we had to rematch all of the footage to that blue hue, even adding blue to the audience light so I could correct the scene back to normal later. Yet we actually liked the slightly cool tint."

Hu now laughs at her about-face. "I had envisioned a color subtext," she says, "and I did color panels for each scene. The original design of the cinema was yellow, green and purple. It all had some philosophical subtext. But then, in reality, everything changed." Nonetheless, she is pleased with the

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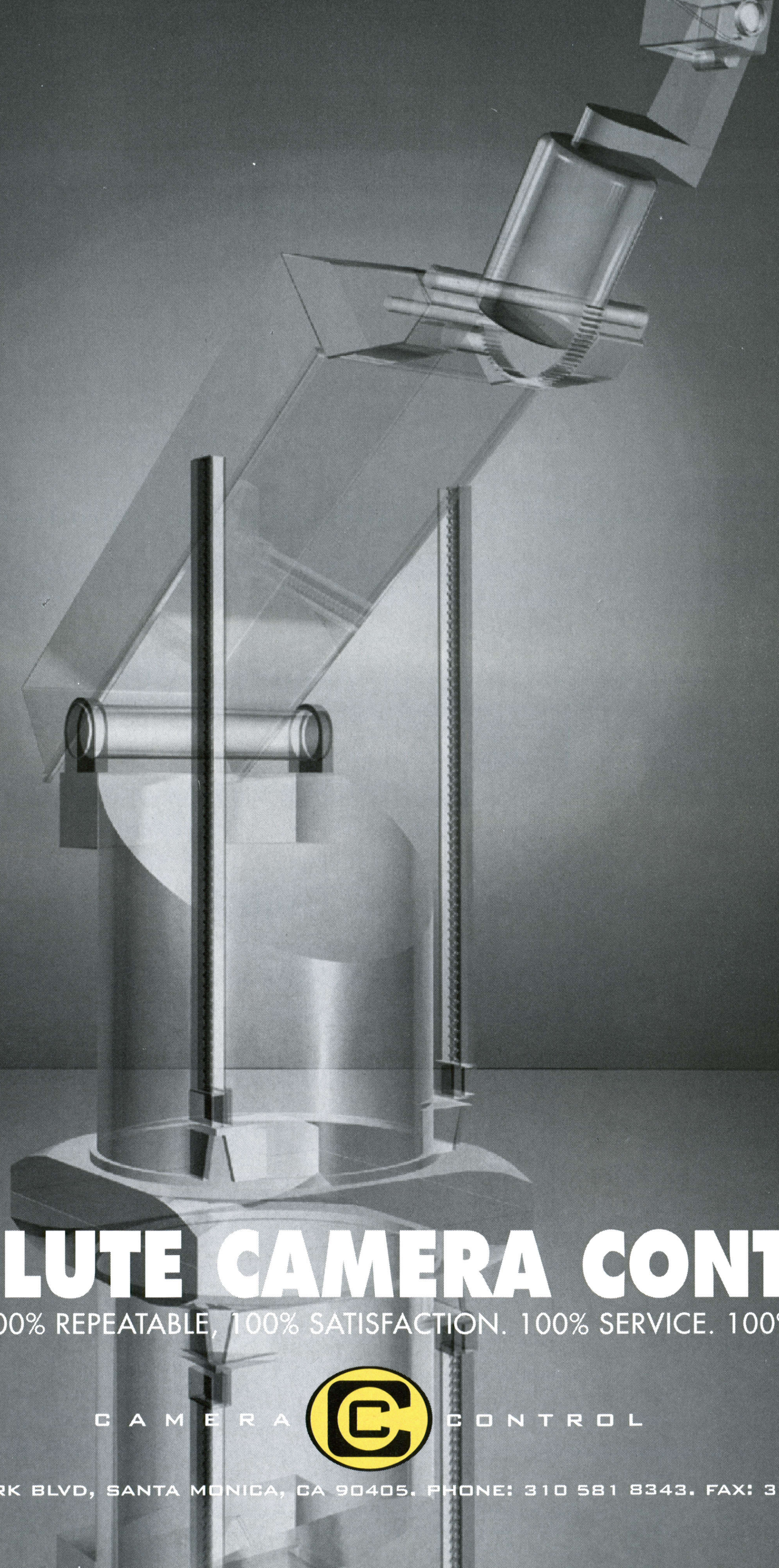

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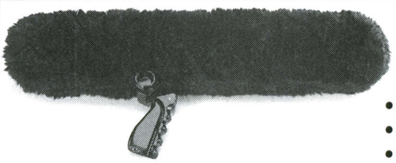

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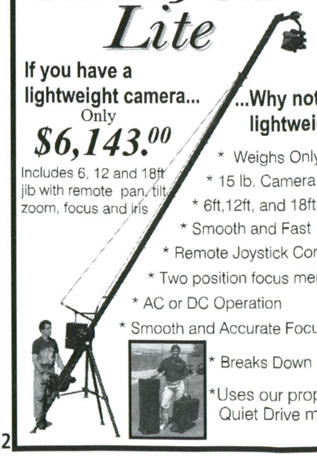

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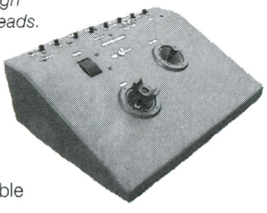

results, as is Schreiber. The cinematographer offers, "Not having the footage in sepia was really great — to have that contrast, since our footage was already warm. And it's a bit backwards, when you think of old movies being in sepia."

All of the black-and-white footage had to be processed on the spot in China, because it appears to be projected in the movie. But no one would risk processing the color film there — not with the amount of dust in Beijing, which producer Sandra Shulberg describes as "one big construction site." The water supply, laced with impurities and unwanted chemicals, was also questionable. All of the color footage was therefore shipped to DuArt in New York, leaving Schreiber without dailies for the entire shoot. "At one point, I got an e-mail saying the footage looked great but very orange," Schreiber recalls. "And I thought, 'No, no. I've used these sepia filters before.' I had to trust my knowledge from the past."

Shooting in China presented some other idiosyncratic challenges, as well as some unique blessings. On the negative side was one essential ingredient: the camera. Schreiber recalls, "We had ordered an Arriflex 535B, but somewhere in the translation of e-mails, we got a 535A, which is a very difficult camera for anybody to use. Electronically, it's incredibly complicated, and if somebody happens to touch the wrong button, none of the electronics work. We did have a problem on the third day, so we begged for a 535B and got it. It was just lovely, and then all of a sudden they took it away again and brought us the A. Nobody knew it very well, and I'm a Panavision person, so I didn't either."

Throughout the shoot, the 535B came and went, depending on whether it had been previously booked. "Finally, I found an old Arri BL4, noisy but a workhorse," Schreiber says. "When we had prob-

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lems, we got the B. The lenses looked good; we had a good choice. I had an Angenieux 25-250mm zoom that was a beautiful lens. We had Superspeed primes for the night work, and they were especially handy for the projection scenes. Because the Lumière footage was very dark and the projector wasn't very bright, I barely had a stop on the screen. I was shooting at very low light levels — T1.2 — so I couldn't have even used Primo lenses, because they're 1.9s. Whether I'd shot with Panavision or Arri [cameras], I would have been using Superspeeds for those scenes. I was using 5279 stock, which I usually rate as 400 ASA as opposed to 500, but on those scenes I was definitely at the edge of the stock's [capabilities]. However the scene is crisp and clean, and we're happy with the way it turned out." When production moved into the studio, the crew was able to get the 535B for the remainder of the shoot.

The Chinese authorities also threw in a few monkey wrenches, such as giving the crew only two hours to shoot in the Forbidden City on a couple of mornings. "It gets light at 7 a.m., and we had to be out of there by 7:30," says Schreiber. In line with Murphy's Law, these were the scenes involving a thousand extras gathered for the Empress Dowager's birthday. "We would start to do makeup and costumes the night before," the director says. "They'd all be sitting in a bus, and then at 6 a.m. they'd dash to our location, rehearse and be ready to shoot by first daylight. We had time to do two takes. Then we'd rush to another place, shoot and get kicked out."

"We had to map this out carefully," adds Schreiber. "The Forbidden City is huge, so we played it by zones. We'd have a Steadicam on certain shots, along with another camera that was set up to get wider shots on a tripod. We'd just run from one camera to the other."

The fact that snow unexpectedly blanketed all of Beijing only added to the pressure. "We were worried that audiences would not believe that the Empress would be sitting outside in the snow, watching a performance," says Schreiber. "I just remember 20 people with brooms clearing it out. What's amazing is that in China, if you need something done, there are always enough people [to help]." On night exteriors, she adds, there were no Condors to be found and scaffolding was makeshift. The crew used Italian "monster" stands that went 35' high. No ladders were used because they were too rickety; an electrician would shimmy up a crankovator to trim the light.

One of the advantages of endless labor came in handy the day the crew realized that the metal curtain grommets holding the photo studio's silk canopy sounded like a sailboat marina whenever the wind stirred. Dozens of willing hands replaced each ring with a cloth tie in a matter of hours. The extra help was also a blessing when the crew had to lug two camera packages up the Great Wall, climbing beyond the tram and even beyond the stairs to a section of remote ruins that are off limits to tourists. Making the climb, quickly setting up the shots, and then getting back down before the December nightfall at 4 p.m. required a massive effort. "There were dozens of people carrying two camera packages up the steps of the Great Wall," Schreiber recalls, shaking her head in amazement. "The sun was coming down and the light was changing very quickly, yet we got all the dialogue and beauty scenes."

Indeed, even though it was taken on the fly and degraded with fake scratches and flares, this footage is truly breathtaking — an endless vista of deep, rolling mountains at the far reaches of the Earth. Schreiber confirms with a nod, "It was an amazing, memorable day."

— Patricia Thomson

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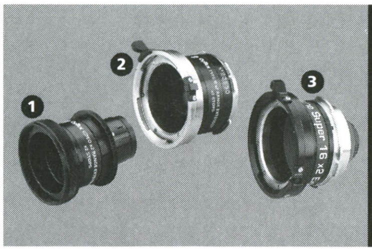

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Animal Factory
Director: Steve Buscemi
Cinematographer: Phil Parmet

Scripted by author Eddie Bunker from his original novel, *Animal Factory* is director Steve Buscemi's second feature effort, following his 1996 debut, *Trees Lounge*. A grim and often darkly comic depiction of prison life, the film opens as sheltered rich kid Ron Decker (Eddie Furlong) is convicted for drug trafficking and sentenced to 10 years in a hardcore federal penitentiary. There, he is surrounded by cross-dressing perverts (Mickey Rourke), vicious repeat offenders (Danny Trejo) and homicidal rapists (Tom Arnold).

Fortunately for the frail, defenseless Decker, he is soon introduced to Earl Copen (Willem Dafoe), a well-connected lifer who surreptitiously runs the dilapidated prison by outwitting its indifferent and incompetent officials. The complex, protective father-son relationship that develops between Decker and Copen gives the film a twisted sense of hope, and becomes *Animal Factory*'s most powerful attribute.

Director of photography Phil Parmet's spare yet atmospheric camerawork effectively ties the story to the environment — lingering on the prison's jagged geometry while searching for graphic representations of the ever-present danger. Before he became a feature-film cinematographer, Parmet honed his camera skills by shooting documentaries and still photos for some 18 years. His narrative feature credits include *In the Soup* (see *AC* Jan. '93), *Two Small Bodies*, *Nina Takes a Lover*, *Four Rooms* (the segment entitled "The Wrong Man") and *Love and Action in Chicago*. His still photography has been exhibited in New York, Paris, Berlin and Los Angeles (see "Still Lives, Distant Vistas," *AC* Dec. '98).

"I've known Steve Buscemi for about 15 years, ever since he was a fireman," Parmet offers with a

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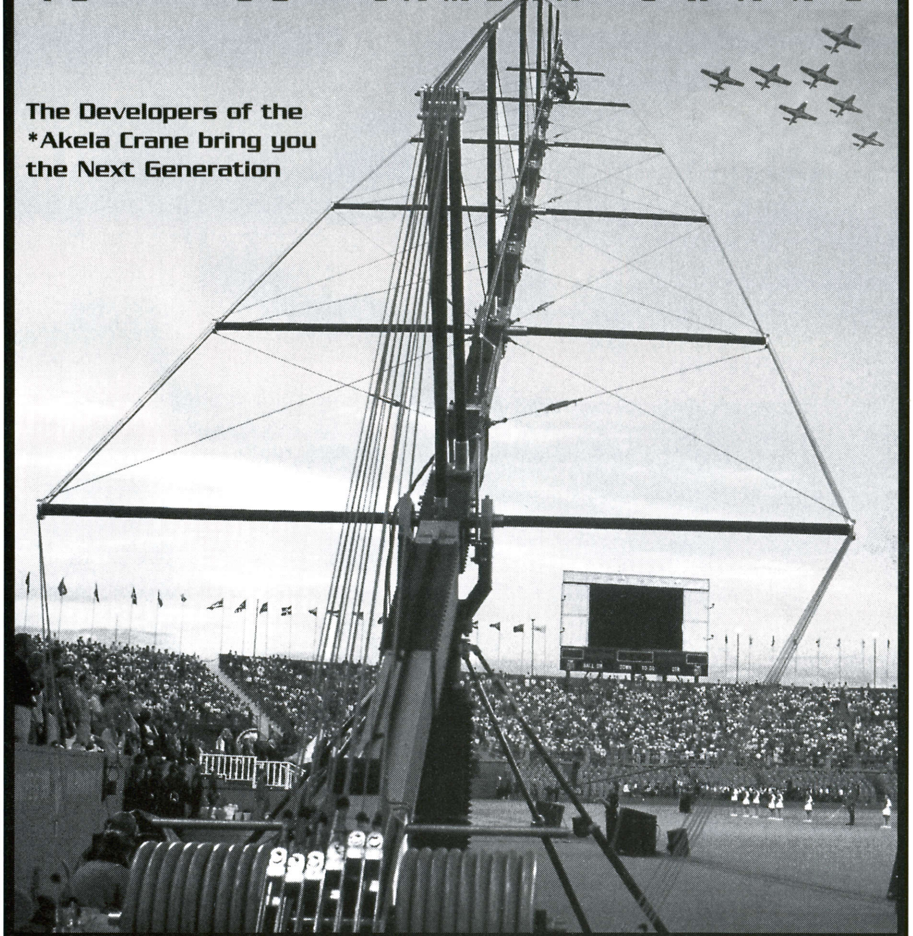

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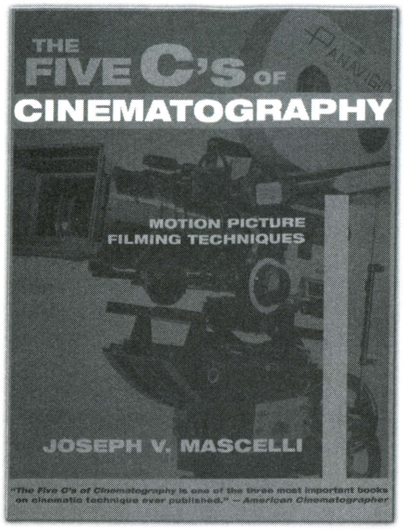

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Left: An effeminate inmate (Mickey Rourke) has a smoke with new arrival Ron Decker (Eddie Furlong) in *Animal Factory*. Bottom: Phil Parmet captures an exchange between actors Willem Dafoe (right) and Danny Trejo.

Photos courtesy of Phil Parmet.

chuckle. "But we really got to know one another when we did *In the Soup*, which he starred in. We remained friends and wanted to work together. He mentioned *Animal Factory* to me about a year ago and asked if I wanted to shoot it. I just said, 'What, are you kidding?!'"

While he was unfamiliar with Bunker's writings, Parmet was well aware of another picture that had been adapted from the author's oeuvre: *Straight Time*, a 1978 film based on Bunker's *No Beast So Fierce* and photographed by Owen Roizman, ASC. "That's one of my favorite movies," Parmet reports with a sly smile.

A key influence on *Animal Factory* was one of Parmet's earliest documentaries, *Tombs*, which detailed life at Tombs Prison, New York's central holding prison at the time. Parmet began working on the project with Nancy Baker, the editor of *Harlan County, U.S.A.*, in 1973. "The structure had been designed to hold some 800 prisoners, but more than 3,000 were jammed in there," Parmet says. "This place was a rathole, a really notorious place. But our producer somehow managed to get us in there with unrestricted access. We could talk to anybody and shoot anything. We shot thousands of feet of 16mm color negative, mostly using available light, and it was just beautiful.

"After we wrapped, our producer suddenly vanished — without paying anybody. All we had was the footage, so Nancy and I made a 30-minute movie out of it. We showed it to *60 Minutes*, and they bought it and cut it to 20 minutes. Mike Wallace read the narration we'd written, and they aired it. Well, two weeks later, the Tombs was closed down. It was an amazing moment. We'd documented a social injustice, and there was a direct reaction.

"I hadn't watched the film in 15 years, but I dug it up and showed it to Steve, and he said, 'That's exactly what I want my film to look like.' We both wanted to make a dramatic film with that sense of reality."

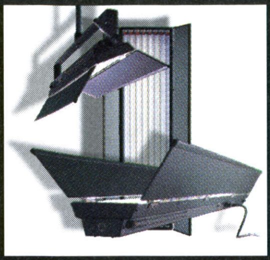
The duo discussed some other influences as well, including *The Battle of Algiers*, a 1965 pseudo-documentary, and *The Farm*, an award-winning 1998 documentary about Angola Prison in Louisiana. *Animal Factory* was shot over 29 days during the spring and summer of 1999 in the decommissioned Holmsburg Prison in Philadelphia, Pennsylvania. Parmet estimates that "probably 20 percent of the picture was shot with available light, and Kodak's high-speed Vision 800T 5289 stock really helped us with that."

Parmet recalls that several of the prison's 100-yard-long central corridors were so enormous that there was no way to light them effectively, given the picture's $5 million budget. "It was a matter of time, equipment and manpower," he explains, adding that he planned for the situation in advance. "During the location scout, I loaded my 35mm still camera with 800T and shot everything we thought we might use, so I could see how the available light played. It looked just great, so I knew I could get away with what there was in many of our locations. The only drawback was that 800T is a premium-priced stock, so we only used it when absolutely necessary. Otherwise, we used Vision 500T 5279, and I feel that the footage intercut really well."

Other planning that paid off during the shoot was for the prison-yard riot sequence. "We had that all storyboarded out and shot it in one day," Parmet says. "We had many extras, including many actual prisoners who had been bused in for the day, and very limited time. The story itself dictated many of the angles we'd need, so it was a scene we could plan in advance.

"Other scenes were more spontaneous," he continues. "The actors and Steve would block out a scene so that it worked for them emotionally, then Steve and I would break it down on the spot in terms of physical coverage and movement, composition and lighting. Occasionally, we'd change a bit of blocking, but mostly we'd try to cover a scene in the way the actors worked it out."

Throughout the film, Parmet used longer lenses than some might feel comfortable with in such confined quarters. "One of the differences between dramatic films and documentaries is the notion of access," he notes. "With staged, dramatic films, sometimes you see too much. In life, often you can't or don't want to get too close to the real action. In filming *Animal Factory*, we wanted to re-create this sort of reality — a sense of watching the action from afar. For example, there are several scenes in the prison yard in which inmates are killed by other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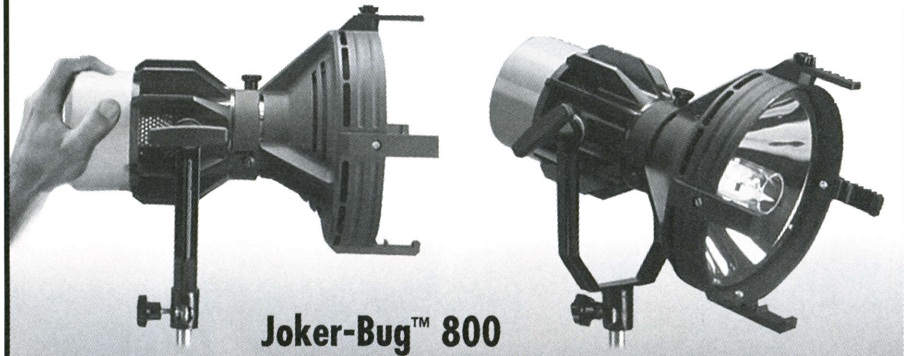
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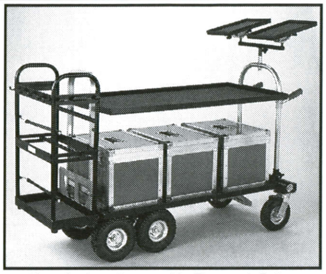

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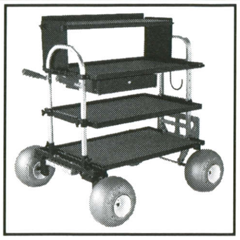

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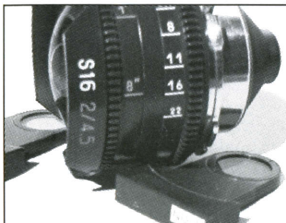

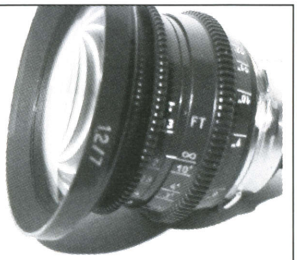

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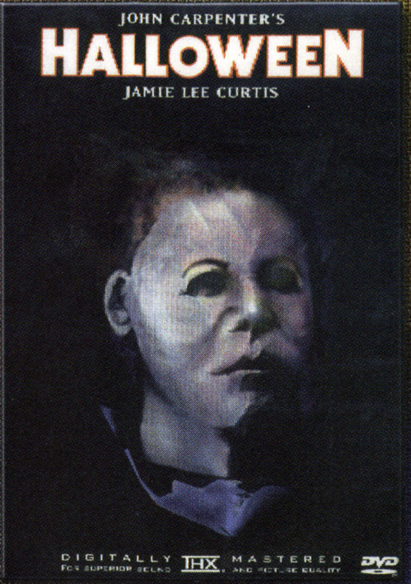
prisoners, but because of the way they are photographed, viewers don't completely see what happened. To achieve this effect, we photographed these scenes with a very long lens, often shooting behind the actors and obscuring what was happening with constant movement across the lens through the foreground."

The picture's cramped prison cells were lit in a variety of ways, but the illumination generally began with what the architecture offered. "In some of the cells, there's a slit in the ceiling that's like a small skylight," Parmet describes. "For a daylight look, our gaffer, Steve Litecki, built a little softbox that we'd hang from above to re-create that feel, and then we'd add a hard HMI source — like a 2.5K lamp with a spot lens — and let that hit one corner of the room, just allowing it to bounce around. I'd sometimes add smaller bounce units on the floor to open up faces a bit. For night interiors, we'd tape China balls to the walls."

One difficulty of working in the cramped cells was that the coverage couldn't vary too much. Parmet notes, "Most of those scenes were straight dialogue, and photographically, there's a limit to what you can do. Sometimes it was simply a matter of varying the lighting in subtle ways. Fortunately, though, we had a Steadicam throughout the shoot, which gave us more flexibility in our coverage, especially in the cells. It allowed us to do very subtle pans or tilts during takes, which would have been impossible with a dolly."

Parmet praises Steadicam operator Mike O'Shea (who had been recommended by Steadicam inventor Garrett Brown), noting, "We needed somebody great, but we didn't have much money. Mike really came through, and so did the rest of the crew, none of whom I'd worked with before."

Parmet adds that production designer Steve Rosenzweig, art director Roswell Hamrick and set decora-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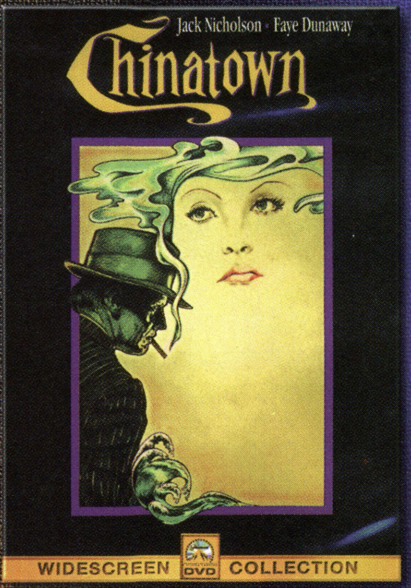
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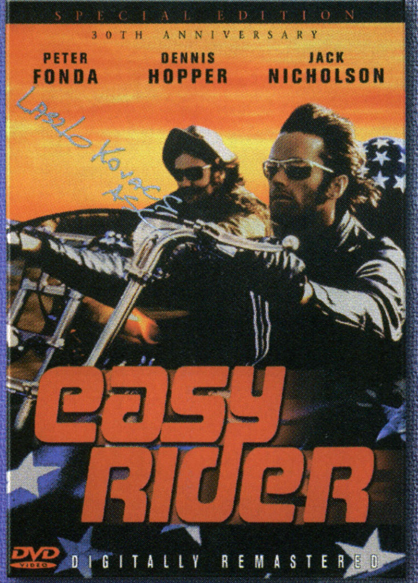
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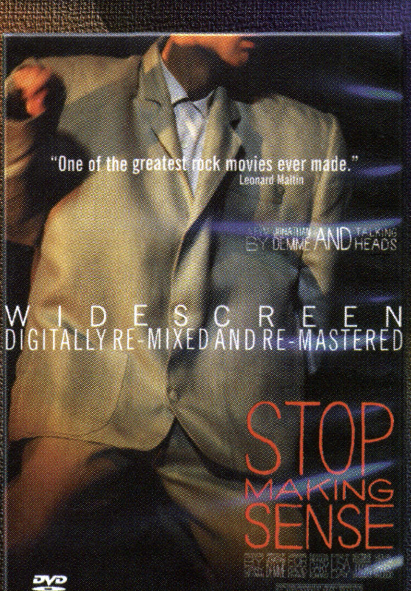
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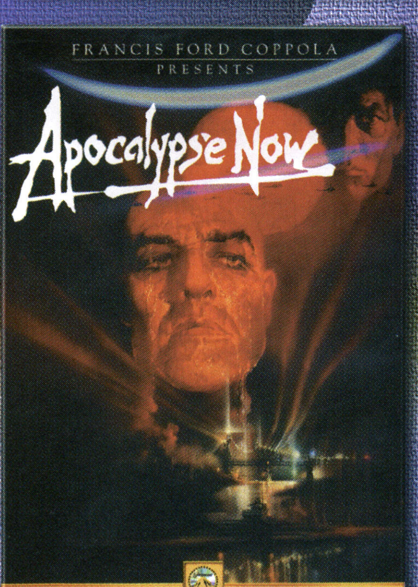
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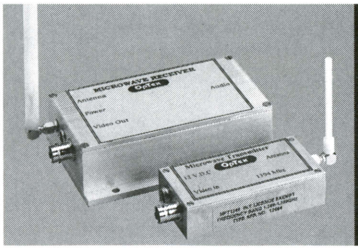

tor Christine Wick had to do a considerable amount of restoration on Holmsburg Prison before the shoot began. "Parts of it were really falling down, which was incredible, because this place had been in use up until it was decommissioned some four years ago. The prison had been built about 100 years ago, and it has plenty of ghosts — not in the supernatural sense, but in the sense of memories of the people who lived and died there. That authenticity affected everyone involved in the film, and gave the production a real sense of mission."

— David E. Williams

Boiler Room
Director: Ben Younger
Cinematographer: Enrique Chediak

Boiler Room, writer/director Ben Younger's first feature, revisits 1990s New York and New Jersey, where a horde of lost adolescent souls cash in by illegally telemarketing phony stocks to anonymous Middle Americans. The brokers' hunger awakens the investors' desire to grasp some of the easy money floating around in a decade that saw the stock market climb faster than ever. "White boys slinging crack rock — that's stockbroking," opines Younger, who based the story on his own recruitment by a "boiler house" firm, back when he was a struggling screenwriter making the transition from being a grip and cameraman.

Younger's directorial debut centers around Seth (Giovanni Ribisi), a deathly pale college dropout who infiltrates the trading floor at an archetypal "chop shop" called J.T. Marlin. He's just one of the new brokers recruited by a smoothly demonic executive (Ben Affleck) to cold-call a handful of investors who become the entire market for tiny, phony companies that are supposedly going public. When Seth and his colleagues (Vin Diesel, Nicky Katt and Scott Caan) cannot harass another sale from their customers, the stock's price peaks. Their boss then dumps his bulk of the stock on the open market, where it quickly becomes worthless — and ruinous for the hapless clients.

The boy-traders become millionaires on the illegal hidden commissions from their sales. As they board corporate party buses to Manhattan in an exhilarating wave of jump cuts set to hip-hop beats, the camera's lens get progressively wider, and the city's skyscrapers take on a glamorous grandeur. "To the characters in my film, Manhattan is like Mecca," states Younger. "The guys love Alec Baldwin's character in *Glengarry Glen Ross,* and they love Gordon Gekko in *Wall Street.* It's totally life imitating art, but *Wall Street* is about the complete opposite end of the financial world — Gordon Gekko is a major player, while my characters are bit players. These guys probably don't know what the letters SEC stand for; they could be selling vacuum cleaners." ➢

Left: Seth (Giovanni Ribisi) baits a client in *Boiler Room.* Below: Director Ben Younger (far left) confers with his cast.

Photos by David Lee, courtesy of New Line Cinema.

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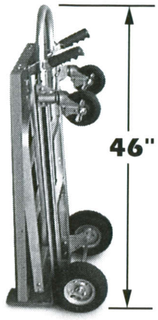
Seduced into this charged atmosphere, Seth's only flickering connections to mainstream life are his desperate efforts to gain the respect of his estranged father, a judge (Ron Rifkin), and his tender relationship with the company's receptionist, Abby (Nia Long). Ultimately, both of them become entangled in Seth's problems.

Although his first feature was a studio picture for New Line, Younger was anxious to maintain an unconventional, gritty feel. To ensure an effective look, he turned to Ecuadorian cameraman Enrique Chediak, whose work he had greatly admired. Chediak won festival awards for his short films at New York University, and he had also captured a 1997 Sundance cinematography award for his work on Morgan J. Freeman's *Hurricane Streets*. His other credits include Robert Rodriguez's *The Faculty* and Maggie Greenwald's *Songcatcher*. Chediak's approach to *Boiler Room* was to create a stylized, monochromatic blue office space that would serve as an icy counterpoint to the rest of Seth's world. "I am a complete film buff," says the cinematographer. "I see all of these films, and they come back to me [when I need inspiration]. The sculptor Henry Moore said he lets the stone guide him; he follows its suggestions to make a sculpture. I love to apply that approach to a film, and I let the locations suggest their own lighting."

Younger adds, "The only thing I specifically requested was the blue look in the J.T. Marlin office. I got the idea from a Delta Airlines ad I saw in the *New York Times* three years ago. It showed a deep blue lake late in the day, and there was an open boathouse blowing out red in the foreground. I actually cut that ad out long before I thought of the movie, but when I saw it again, it perfectly represented this alternate reality that these brokers had created for themselves. We also got some composi-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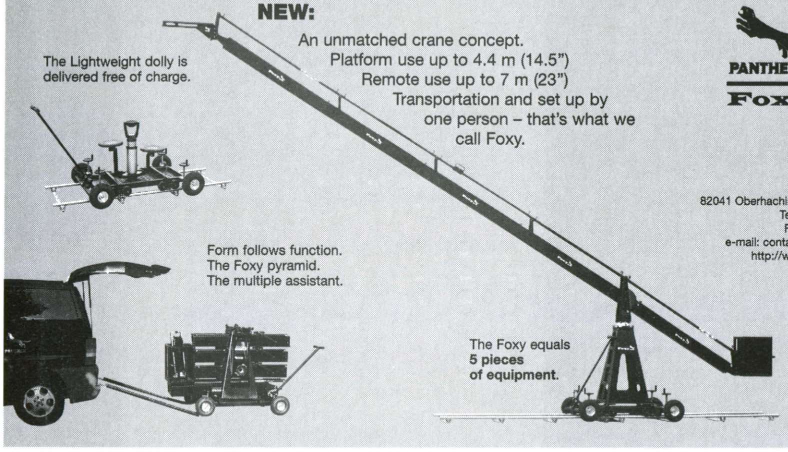
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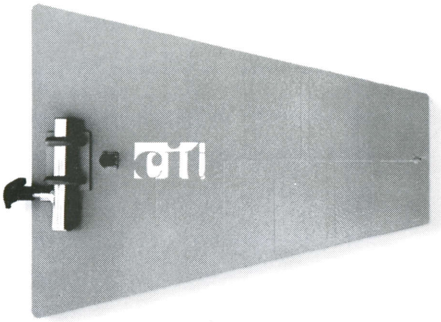
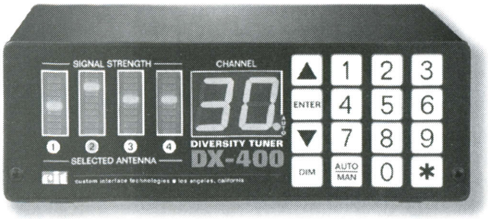
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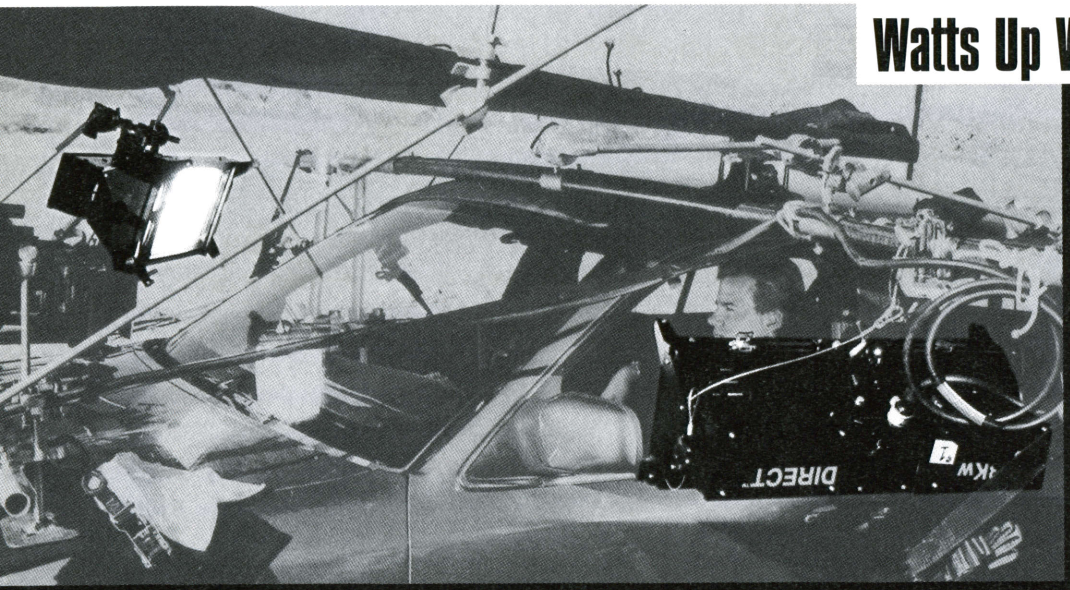
tional ideas from the work of Roy DeCarava, a still photographer who was the first African-American to get a Guggenheim grant [in 1952]."

For much of the film, Chediak used the camera as Seth's alter ego, shooting a lot of handheld footage with a Moviecam Compact equipped with Zeiss Superspeed lenses, set mostly at T2. "We made a deal that I was going to operate on all of the handheld scenes," the cinematographer reveals. "I love to operate when the camera is handheld, because you also become a character."

As Seth's telephone pitches become more sophisticated and cruelly convincing, the lenses go wider on him, placing the character in the center of a larger territory. His first sell to Harry (a Midwestern father whose savings Seth wipes out) was shot with a 135mm lens, setting the foreground hustle of the boiler room against cutaways to Harry's tranquil office cubicle. "We were looking to build Seth's character with the camerawork," says Younger. "On his second sell [to Harry], we knew Seth had to be the man, and that the scene had to be really kinetic. We used a 12mm lens, and we were really close to him. [Camera operator] Michael Green used high sticks [for the camera] as Giovanni paced right in front of it; the camera panned with him, causing the whole back of the office to spin."

As the film begins, a Technocrane shot searches through the windows of a moving bus packed with stockbrokers and lands on Seth's bewildered face in the last row. Later in the story, the camera deserts him when he is disowned by his father in a park outside the judge's chambers; the shot stays far outside Seth as it silently circles the two characters on a dolly. A Steadicam (operated by William Arnot) is used throughout the tale to underline the slick composure of the salesmen's side of the telephone conversations, while shaky, handheld shots are employed to depict the nervous clients on the other end of the line. "The handheld camera definitely gets a lot shakier as we move along in Harry's world," Younger comments. "When he finally attempts and fails to sell his stock and hangs up the phone, there's a jump cut in there, too."

The cinematographer created the Arctic-blue wasteland of the trading floor by shooting Kodak's EXR 5293 tungsten stock in daylight. (He used the stock for most of the film, supplementing it with Vision 500T 5279 for some night footage.) Chediak recalls, "When we were talking about the cold look, the production designer had an architectural book of office spaces shot in daylight with tungsten film, and Ben liked the tones very much. We worked with



Watts Up With SoftSun 3.3K?

What's the best new way to light interiors for the ever-popular car chase? Leave it to veteran action cinematographer David Eggby whose credits range from *Mad Max* to the forthcoming *Blue Streak*.

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Eggby lit effectively with just two 18 pound, 3.3K SoftSuns. One lit through the front windshield to fill out the interior while the 2nd positioned at the side achieved good relative light balance. Due to their soft output, no diffusion was needed.

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Using SoftSun's dimmer panel, Eggby positioned himself in the towing vehicle and adjusted intensity as the shot progressed. "SoftSun let us reverse vehicle directions without a new setup. We drove in one direction, turned around, reprogramed the control unit to compensate for the varying sun position, then shot again with no down time."

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the production designer [Anne Stuhler] and the costume designer [Julia Caston] so that everything on the set would be done in shades of gray and blue. It was very important that the characters' faces looked pale, because if they didn't, they would go toward pink, which is very unflattering. The claustrophobic feeling of the office space helps the story; we filled it with a lot of people and made the windows purely a source of light — you can't see out."

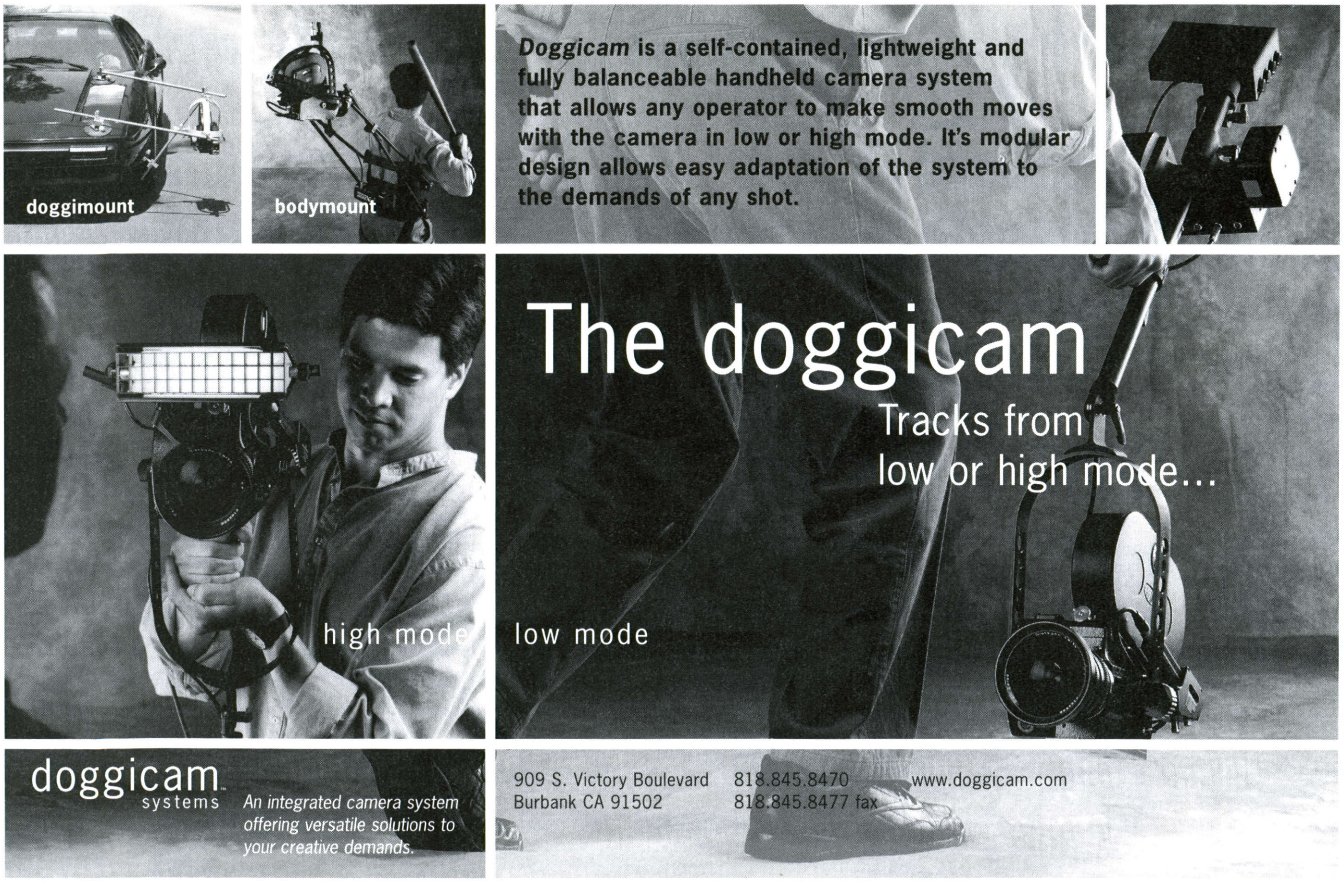
Younger adds, "We blew out the faces in the boiler room — no shadow, no contrast. That was how we separated the brokers from the movie's other characters, who [were all] lit normally and realistically."

Gaffer Joseph Quirk details, "The boiler room key lights were Arri 6K Pars booklights corrected to 4350 degrees Kelvin. We kicked them off of bleached muslin and aimed the light through 8' x 8' frames of Half Soft Frost. The lights were played low, off turtles, because so much of the action involved seated actors. Our fill was provided by Kino Wall-O-Lights, bulbed for daylight and recorrected to match the keys. That cut down the contrast and allowed the color to make the visual statement."

Melting tones enhance Seth's scenes with Abby. Chediak explains, "I took special care with her because she is the only woman at J.T. Marlin. One of the reasons the reception area doesn't have the cold look of the boiler room is because it's Abby's space. We also keyed her with booklights, sometimes with a ⅛ Straw and a ¼ Tiffen ProMist filter on the lens. Additionally, the bounce material was changed to unbleached muslin to accentuate her beautiful skin tone."

As Seth awakens from his delusions, he's lit with toplight in scenes rendered in muted colors. For a sequence involving an FBI office interrogation, Chediak lit from above with tungsten Par 38 narrow spots, which are usually used as outdoor security lights. Fill for the scene was generated from the floor by 2K Mighty Chimeras fitted with 40-degree fabric grids. He notes, "It was very important to me to maintain some level of reality in those spaces, because otherwise, the film would have been too beautiful and too stylized."

The film's climactic scenes were all-absorbing for Younger, and he felt buoyed by his close collaboration with Chediak. He offers that "cinematographers are by definition part of a technical group of people in film work, but Quique can express himself verbally in an emotional manner in a way that is unparalleled, [not only] among directors of photography, but among most people I know." — Lucy Nicholson ■



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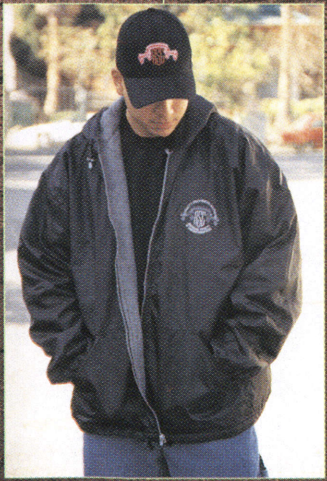

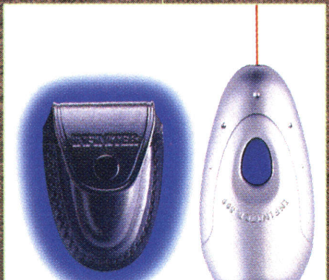

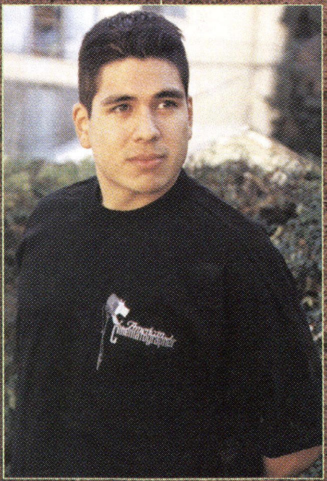

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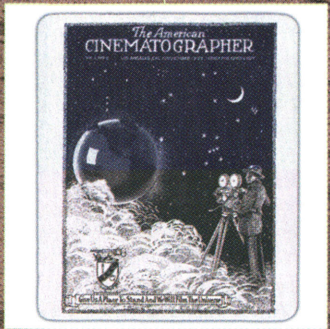
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Taking Stock

Cinematographers Jay Holben and Christopher Probst conduct rigorous tests of Fuji Film's Super-F and Eastman Kodak's Vision series of motion picture emulsions.

Part 1 of 2

by Jay Holben

In this two-part series of articles (to be concluded next month), *American Cinematographer* will offer a thorough examination of the Fujifilm Super-F and Eastman Kodak Vision series of motion picture negatives. In our attempt to offer definitive information about the behaviors of these tools-of-the-trade under various treatments, each article will examine the design of the various emulsions (as well as recent improvements) before presenting the results and analyses of the intensive technical tests, which were performed by cinematographers Jay Holben and Christopher Probst. The first of these two comprehensive examinations will present the results of the Fujifilm Super-F series test.

Redefining the Physics

One of the stumbling blocks for emulsion engineers has always been the cinematographer's demand for more speed and less grain. This oxymoron of physics presents designers with quite a challenge — in order to improve granularity, the silver-halide crystals themselves must be reduced in size, which also reduces the light sensitivity of the film. To achieve a high-speed and fine-grain emulsion, the engineers at Fujifilm have created a technology called Super Unified Fine Grain (SUFG) and incorporated it in the new Super-F series of motion-picture negative films.

The SUFG technology consists of thin, hexagonal, tabular grains, each of which is consistent in shape and size throughout all of the emulsion layers. This thinner, flat grain has a larger surface area, relative to its size, that allows the crystal to have the same sensitivity as conventional silver-halide grains, at one-third the size. This allows engineers to maintain the same emulsion speed with smaller grains. Furthermore, the grains are oriented parallel to the film surface, allowing any incidental light to be directed toward the lower layers, while at the same time controlling the scattering of light so that exposure blurs can be kept to a minimum. At the edge of each tabular grain is a high-density region that allows a momentary concentration of photoelectrons, which are generated at the time of exposure. This concentration of additional electrons contributes to more efficient latent-image formation and, later on, to better development of that latent image. The SUFG technology is incorporated into all the layers of the emulsion, and the result of this technology is a high-speed stock with considerably reduced grain.

The first of the SUFG emulsions to be unveiled was Fuji's Super-F 500T (8572/8672), which was followed by the remaining stocks in this series. Although the name for the stocks has not changed — they are all still designated as the Super-F series — all of the stocks with a product identification number ending in a "2" have been updated to include the latest technologies from Fujifilm's laboratories. These stocks include 8522/8622 (64D), 8532/8632 (125T), 8552/8652 (250T), 8562/8662 (250D) and 8572/8672 (500T).

Another of Fuji's advances is the incorporation of Super DIR Couplers and Two-Stage Double-Timing DIR Compounds. These innovations offer vast improvements in sharpness and color reproduction over traditional high-speed emulsions through a more precisely controlled release of high-diffusional development inhibitors. The Super DIR Couplers provide greater control over the release of development inhibitors between adjacent layers of the film emulsion; the Two-Stage Double Timing DIR Compounds further refine this process through a two-stage chemical delay in dye inhibitors that results in a sharp, vivid color reproduction.

In normal development, a development inhibiting releasing (DIR) coupler limits the size of dye "cloud" that is created when the latent silver-halide grain is processed and coupled to a dye grain. Without DIR Couplers, the dye cloud, like a droplet of water on a paper towel, can spread to an unwieldy size. The DIR Couplers help restrict the size of the dye cloud and refine the sharpness of the processed image. With Fuji's proprietary Two-Stage Double-Timing DIR compounds, two additional stages of precursors are released prior to the interaction of the actual inhibitor. These precursors delay the restriction of the dye cloud, allowing it to develop slightly longer before the actual inhibitor stops the process. This delay contributes to improved image sharpness, with clean edge profiles on each of the color dyes in the image. Like the SUFG technology, Super DIR Couplers and Two-Stage Double-Timing DIR Compounds are incorporated into every layer of the Super-F emulsions.

One final improvement Fuji's engineers have incorporated into their full line of emulsions is an optimized yellow-mask density that has improved each stock's performance in telecine transfer. In reducing the density of the yellow mask, or "blue layer" (which is notoriously the most "noisy" and difficult to control in telecine), by approximately 20 percent, Fuji's engineers have manufactured an emulsion that helps to create cleaner telecine transfers while still yielding proper film prints.

THE TEST

"Cameramen always get a little bit silly when they get a chance to test new film," cinematographer John Alonzo, ASC says in his narration for Fuji's 64D and 125T test. Truer words were never spoken. When *AC* presented the idea of covering Fuji's release of a new, 500-speed Super F-Series film stock, my first impulse as a director of photography was to test and test hard. Having never used Fuji's stocks, I was quite excited by the notion of really delving into the heart of the stock. I teamed up with fellow cinematographer and *AC* technical editor Christopher Probst, and we developed an aggressive test that would put the stocks through their paces. We began by consulting previous emulsion-test articles and the ASC manual (which includes an emulsion-testing outline authored by Steven Poster, ASC), and by considering recommendations from Denis Lenoir, AFC, who had conducted an intensive battery of tests for the French cinematography organization.

> **One of the stumbling blocks for emulsion engineers has always been the cinematographer's demand for more speed and less grain.**

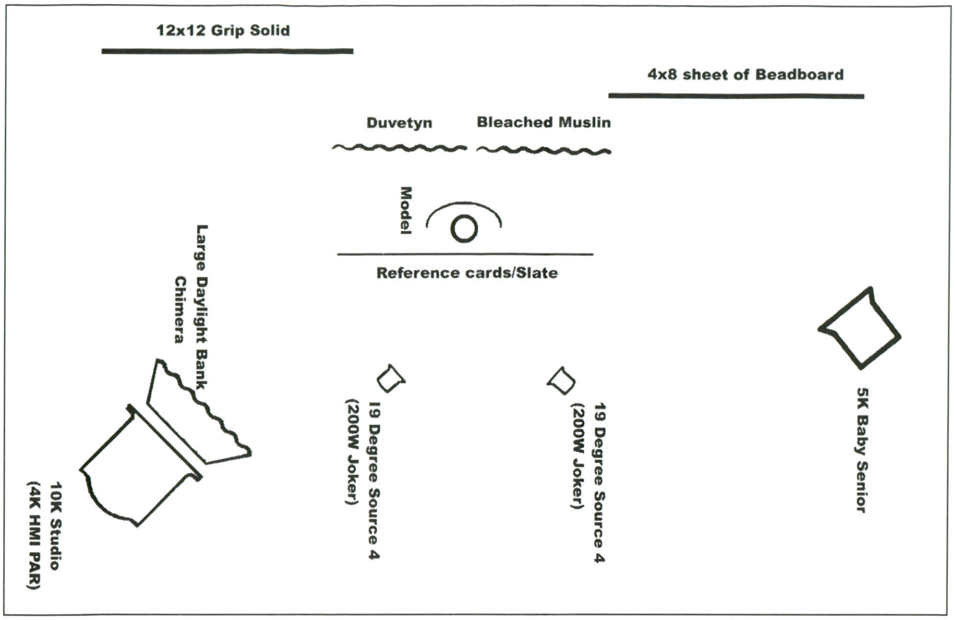
The initial results were even more exciting than we could have imagined, and we immediately made plans to expand the test to include all of Fuji's Super-F Series stocks, as well as the full line of Eastman Kodak Vision films. (The results of the Eastman Kodak tests will be presented by Probst in next month's issue of *AC.*)

THE DETAILS

All of the emulsion tests were conducted on 35mm negative alone. The accompanying chart (see page 120) was created for our data sheets to reference the primary areas where exposure-control measurements would be taken. Information was recorded for each batch of iterations and for each emulsion. During the tests on all emulsions, the model was seated just behind the reference charts, which included a Kodak 18% gray card (at position "L" on the chart), a seven-step gray scale ("I"), a MacBeth Color Chart ("K") and a Sharpness Indicator, as well as an information slate. Immediately behind the model, we hung a strip of black Duvetyn ("B") and white, bleached muslin ("E") to provide "textured black" and "textured white" contrast extremes (incident meter readings in these areas were 1 ½ stops under the key level). Immediately beside those, but farther off in the background, we placed a large grip solid ("A") and a large sheet of polystyrene or beadboard ("F") to provide references to "pure black" (the incident meter reading in this area was 7 ⅔ stops under key) and "pure white" (the incident level reading in this area was three stops over key).

Each iteration of the tests was exposed three times on three separate rolls of the same emulsion: one intended for a one-stop pull-development, one for a normal development and one for a one-stop push-development. The ISO for each emulsion was determined by the manufacturer's base rating. For pull- and push-process, the emulsions were rated one full stop over and under their respective ratings (i.e., for Fuji Super-F 8572 500T, the normal-process iterations were exposed with an ISO rating of 500; the pull-process rolls were exposed with an ISO rating of 250; and the push-process rolls were exposed with an ISO rating of 1,000). Using this method, we could keep the physical lighting setup constant for each phase of the emulsion tests, and adjust exposure levels consistently using the lens T-stop.

The reference cards were all lit to a level that matched the key source level. Their illumination was not altered during the test, so that they would always remain at the same exposure level as the lens setting. Lighting for each of the tests was achieved through the use of tungsten sources or HMI sources, depending


12x12 Grip Solid
4x8 sheet of Beadboard
Duvetyn
Bleached Muslin
Model
Reference cards/Slate
Large Daylight Bank Chimera
10K Studio (4K HMI PAR)
19 Degree Source 4 (200W Joker)
19 Degree Source 4 (200W Joker)
5K Baby Senior

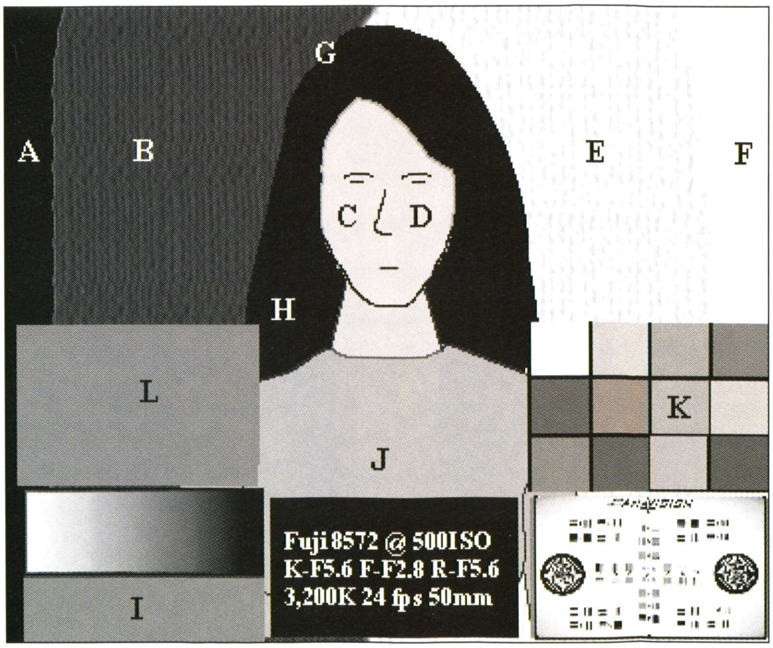
on the emulsion balance (see lighting diagrams for details). Color temperature was carefully monitored and altered, via the use of Lee CTO and CTB correction filters, to fall within an overall tolerance of +/- 50K of 3,200K for the tungsten-balanced stocks, and +/- 50K of 5,500K for the daylight-balanced stocks. Temperature measurements were taken with a Minolta Colormeter II from the position of the model.

Incident meter readings were taken with a Minolta Auto Meter III, and reflected meter readings were taken with a Minolta Spot F meter. All calibrations for the meters had been completed within the previous 30 days by Quality Light and Metric in Hollywood. All of the tests were photographed on the Panavision Woodland Hills Stage 2 with a Panavision GII camera and a 50mm Primo lens. Lighting was provided by Hollywood Rentals, and the laboratory work was performed by Deluxe Hollywood.

After the test was completed, all of the rolls were taken to Deluxe for processing. Pull- and push-processing was precisely calibrated for a true one-stop rating, per Deluxe's standard procedure. Each iteration on the negative was examined on a densitometer (reading the emulsions' density from the Kodak 18% gray card at exactly the same frame for each iteration), and the information was recorded. Printer lights were designated to achieve the proper rendering (print lab aim density of red, 1.09; green, 1.06; and blue, 1.03) of the scene based on that gray card densitometer reading. Once a print was struck, each iteration on the positive was again examined through a densitometer to determine whether the printer light choices had been correctly assessed. Alterations were then made to properly reflect as near as possible to an LAD reading off the gray card in each iteration, and a second print was made from the original camera negative. This print was once again examined on the densitometer, and the values were recorded.

Also worth noting: for the majority of the tests (with the exception of the 250D test, which was the first emulsion we tested), we utilized a mathematical T-stop setting instead of fractions of a stop (i.e., T2.8 ½ was presented as T3.4) for the slate that appears in each frame. The scale, shown in both one-third and one-quarter stops, appears below for reference (bold numbers are full stops, underlined numbers are ⅓ stops, regular numbers are ¼ stops): **1.4**, 1.5, 1.6, 1.7, 1.8, 1.9, **2**, 2.2, 2.3, 2.4, 2.5, 2.6, **2.8**, 3.1, 3.2, 3.4, 3.6, 3.7, **4**, 4.4, 4.6, 4.8, 5, 5.2, **5.6**, 6.2, 6.3, 6.8, 7, 7.4, **8**, 8.7, 9, 9.5, 10, 10.2, **11**, 12.2, 12.7, 13.5, 14, 14.7, **16**, 17.5, 18, 19, 20, 20.5, **22.**

Once the model was correctly positioned behind the reference cards, a single large, soft source was used as a front key. For each iteration,


A
B
G
E
F
C
D
H
L
K
J
I
Fuji 8572 @ 500ISO
K-F5.6 F-F2.8 R-F5.6
3,200K 24 fps 50mm
PANAVISION

DENSITOMETER READINGS

Densitometry in motion picture film is the measurement of the degree of opacity in a color film image with regard to red, green and blue light. To read the density of a given image, a transmittance densitometer measures the amount of light passing through an image, and translates that percentage to a numerical expression. For the Fuji Super-F series of negatives, the d-min (or minimum density) of a piece of processed clear (unexposed) negative is:

Stock	Red	Green	Blue
8522 (64D)	.20	.47	.79
8532 (125T)	.21	.48	.81
8552 (250T)	.20	.59	.83
8562 (250D)	.23	.54	.83
8572 (500T)	.22	.55	.81

These numbers, reported back from a densitometer, are on a logarithmic scale to a base ten. A sample that transmits half of the incident light has a transmittance of .5 or 50 percent. However, in terms of density, the number scale actually refers to the sample's opacity; therefore, the result must be converted to a reciprocal number to represent that sample's opacity. A sample with a transmittance of .5 would actually have an opacity of 2 (1 divided by .5) and a density (on a logarithmic scale with a base ten) of .30 (log of 2.0). This same scale will be familiar to cinematographers in reference to neutral-density filters, which are calibrated in one stop densities of .30, .60 and .90, which are the equivalent of ½, ¼ and ⅛ the transmitted light.

To properly place the 18% gray card in each iteration from the negative at LAD (Lab Aim Density) on the print, the densitometer operator measures the density of that specific area of the frame. If the exposure on the negative is properly made, that number should equal the d-min of the film plus .70. These numbers generally are in the neighborhood of .80, 1.20, 1.60 (RGB). There are, however, variations that can be expected, resulting from the differences in emulsion batches, the specific color bias of the camera's lens, or many other factors that contribute to the overall color of the exposure. That sample can then be printed at an LAD light setting (for Deluxe, the LAD setting is 26-26-26). Every printer light on this scale is the equivalent of a .025 change in density. Therefore, a sample with a density of .83, 1.26, 1.57 would print at 27-28-25 to maintain proper rendering of the 18% gray in the print.

It is important to make the distinction that prints stocks respond to each printer light with a .075 density. On the straight-line portion of the curve, each printer light (.025) then produces a density change of approximately .075. Thus an incremental change in negative density would result in a change on the print of roughly three times that amount. Printing on the toe or shoulder of the print stock, the change in density will be less than .075 per light.

Although densitometry is exact science, the results are not always "right on the money." A variation in density of .015 to .020 is completely normal. Also, depending on how the emulsion is exposed, it may not react exactly the same as an optimally exposed negative. If the negative has been significantly underexposed or overexposed, that corresponding value may actually be placed on the toe or shoulder of the print stock's sensitometry. In that case, it will not necessarily respond in a linear fashion to an increase or decrease in printer lights. When you are printing on the toe or up on the shoulder of a print stock, the characteristic curve is much flatter and the print will not necessarily respond to every increment of printer light with exactly .025 points of density. Only when a value from the negative is exposed on the straight-line portion of the print curve does one printer light equal a .075 increase in density.

Once the print from these tests was made, a second reading was completed on the positive image — once again using a transmission densitometer. When the 18% gray has been properly printed, that area will have a positive density of 1.09, 1.06, 1.03 (RGB).

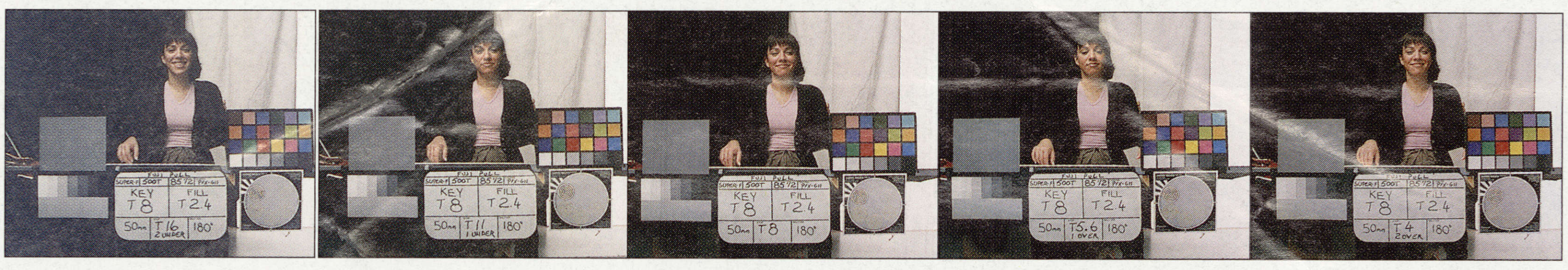
A scene that is underexposed is one that receives less light on the negative than what is considered optimum for a particular negative's sensitivity. Fewer silver-halide crystals in the emulsion will have been "activated" by light, with the result being less development and fewer dye formations. Many of the silver-halide crystals (all those that are not "activated" by light) will be removed when the negative is developed. That negative will have less dye formed in the emulsion, and therefore less density than a normally exposed negative. It will also require less light passing through that negative to render an optimally exposed print, hence requiring a lower printer-light number. The opposite is true for a scene that has been overexposed. With more density in the negative from developed dye formation, more light will be required to make a corresponding print, thus requiring a higher printer-light number.

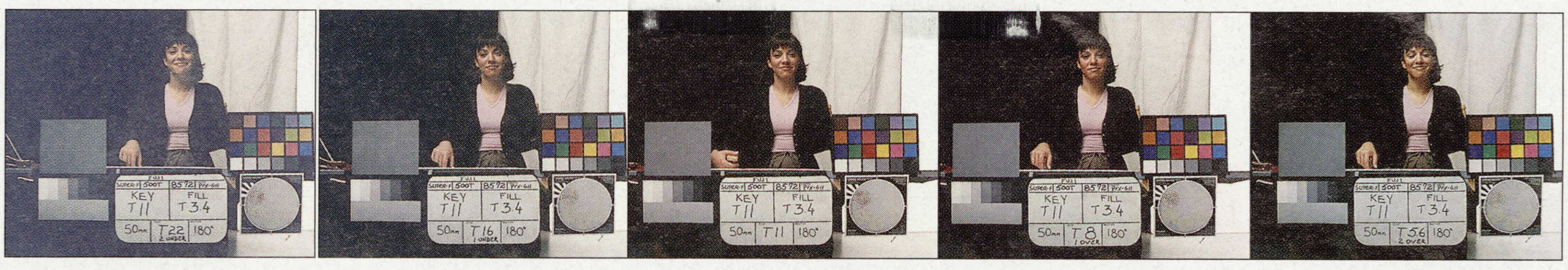
For this test, densitometer readings were made on the exact same frame of each iteration. Carefully monitoring the footage counter resulted in a "stabbing" at precisely one foot in from the start of the iteration. This position was determined to be the best and most consistent position from which to measure.

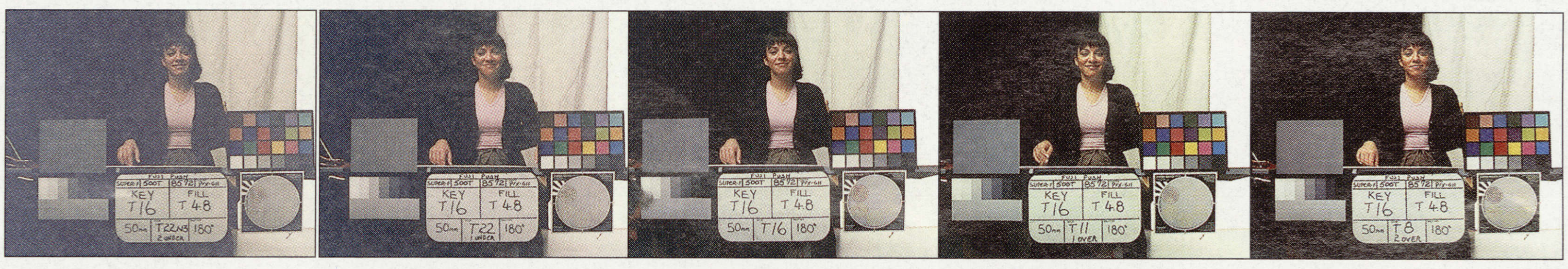
— Jay Holben

Fuji Super-F 8572 — 500T

N = Negative density   PL = Printer lights   P = Print density



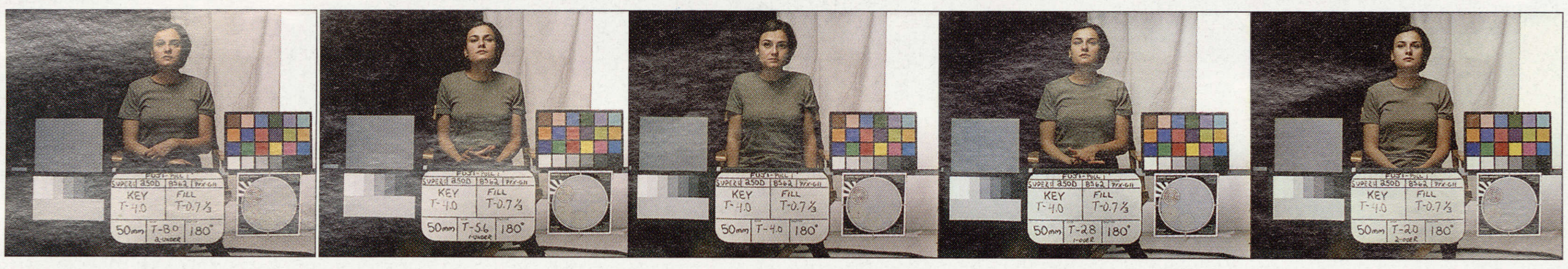


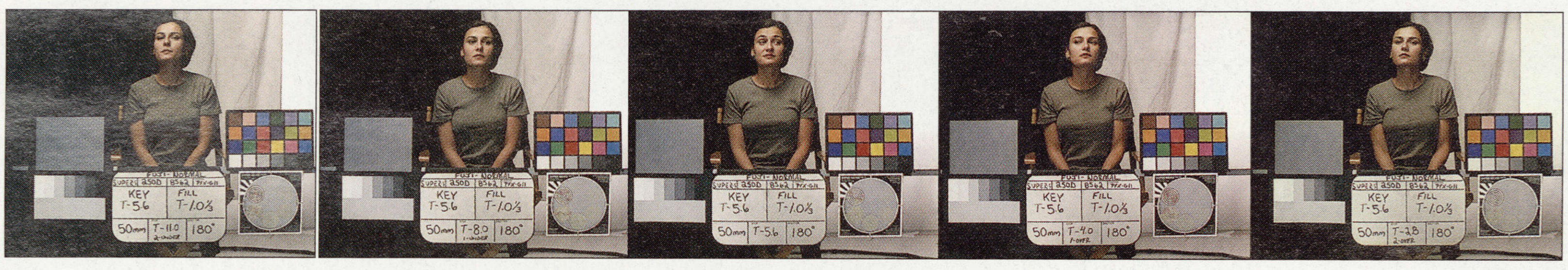


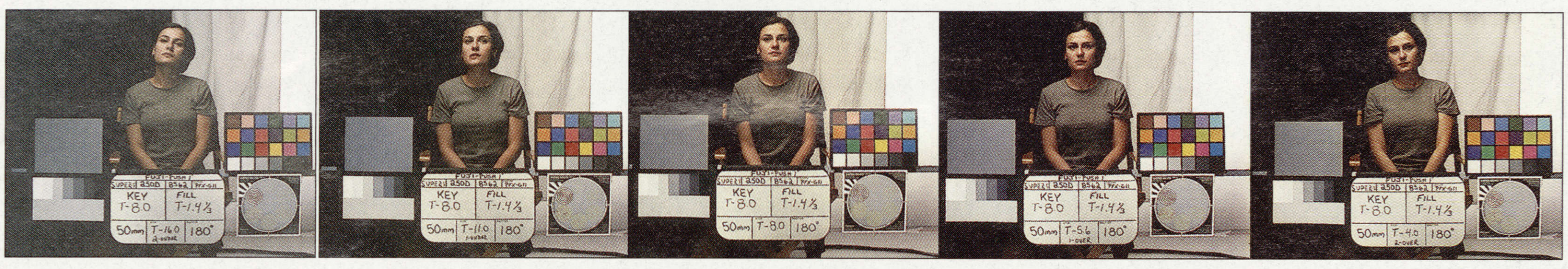
	Two Stops Under	One Stop Under	Normal	One Stop Over	Two Stops Over
PULL PROCESS	N – .41, .79, .99 PL – 8, 12, 3 P – 1.08, 1.02, 1.01	N – .57, .96, 1.18 PL – 15, 19,11 P – 1.06, 1.03, 1.04	N – .72, 1.12, 1.35 PL – 21, 25, 17 P – 1.06, 1.05, 1.04	N – .88, 1.30, 1.56 PL – 28, 31, 24 P – 1.10, 1.03, 1.03	N – 1.00, 1.42, 1.71 PL – 33, 36, 30 P – 1.05, 1.03, 1.04
NORMAL PROCESS	N – .40, .77, .99 PL – 8, 11, 3 P – 1.08, .98, .98	N – .54, .92, 1.14 PL – 14, 17, 9 P – 1.09, 1.02, 1.04	N – .71, 1.10, 1.35 PL – 21, 25, 17 P – 1.05, 1.05, 1.02	N – .85, 1.28, 1.54 PL – 28, 32, 24 P – 1.10, 1.07, 1.07	N – 1.01, 1.47, 1.70 PL – 35, 39, 31 P – 1.12, 1.06, 1.06
PUSH PROCESS	N – .45, .83, 1.19 PL – 10, 14, 11 P – 1.10, 1.05, 1.03	N – .58, .94, 1.27 PL – 16, 19, 15 P – 1.10, 1.07, 1.08	N – .75, 1.11, 1.43 PL – 23, 25, 20 P – 1.10, 1.08, 1.05	N – .94, 1.35, 1.65 PL – 31, 33, 28 P – 1.09, 1.02, 1.02	N – 1.09, 1.58, 1.80 PL – 37, 43, 34 P – 1.05, 1.06, 1.04

Fuji Super-F 8562 — 250D

N = Negative density   PL = Printer lights   P = Print density



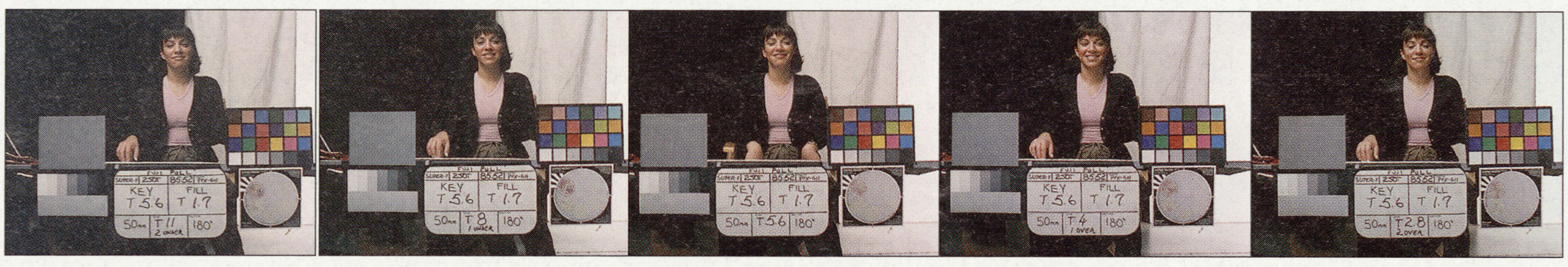


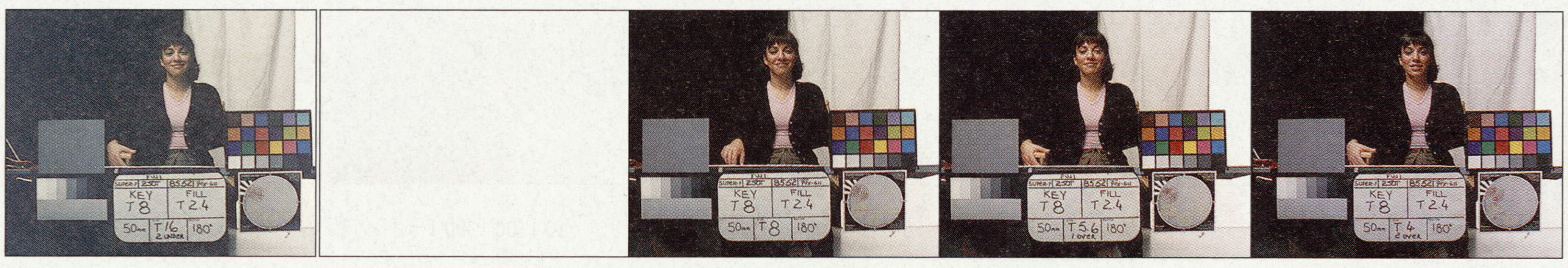


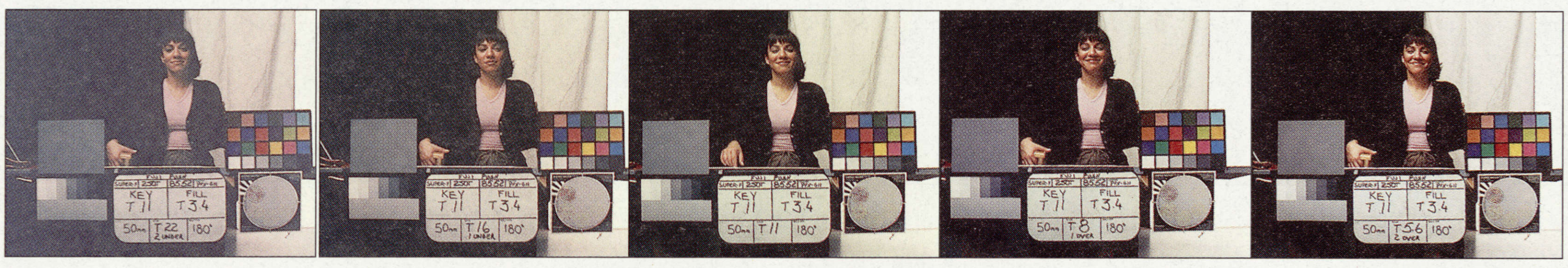
	Two Stops Under	One Stop Under	Normal	One Stop Over	Two Stops Over
PULL PROCESS	N – .51, .91, 1.21 PL – 13, 17, 12 P – 1.06, 1.02, 1.03	N – .66, 1.06, 1.39 PL – 19, 22, 18 P – 1.04, 1.00, 1.01	N – .79, 1.19, 1.57 PL – 25, 27, 25 P – 1.05, 1.00, 1.02	N – .93, 1.33, 1.74 PL – 32, 33, 32 P – 1.10, 1.02, 1.01	N – 1.05, 1.47, 1.92 PL – 36, 38, 38 P – 1.06, 1.05, 1.04
NORMAL PROCESS	N – .51, .90, 1.19 PL – 13, 16, 11 P – 1.07, 1.00, 1.02	N – .66, 1.05, 1.37 PL – 19, 22, 17 P – 1.04, 1.01, .99	N – .82, 1.22, 1.57 PL – 26, 29, 25 P – 1.08, 1.05, 1.05	N – .96, 1.38, 1.75 PL – 32, 35, 32 P – 1.04, 1.03, 1.05	N – 1.12, 1.55, 1.96 PL – 39, 41, 40 P – 1.06, 1.04, 1.08
PUSH PROCESS	N – .53, .87, 1.17 PL – 14, 15, 10 P – 1.10, 1.00, 1.04	N – .70, 1.07, 1.43 PL – 22, 23, 19 P – 1.10, 1.01, .99	N – .86, 1.24, 1.59 PL – 28, 30, 26 P – 1.05, 1.01, 1.00	N – 1.06, 1.49, 1.79 PL – 36, 39, 33 P – 1.06, 1.04, 1.00	N – 1.23, 1.72, 1.00 PL – 43, 47, 41 P – 1.04, 1.01, 1.03

Fuji Super-F 8552 — 250T

N = Negative density   PL = Printer lights   P = Print density



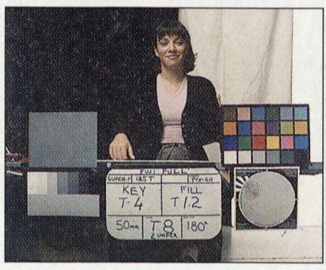
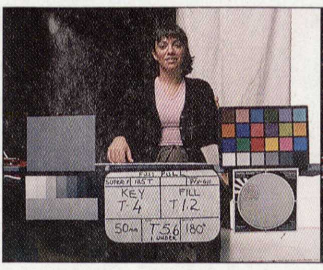
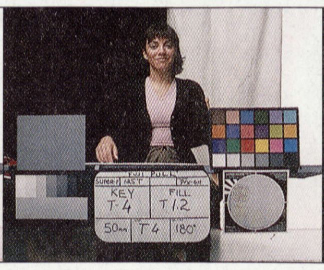
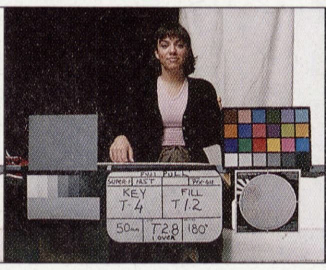
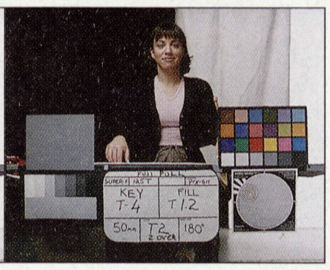
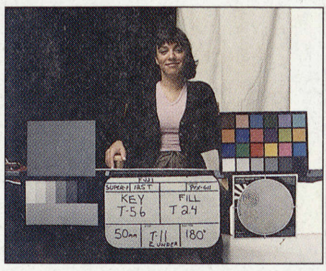
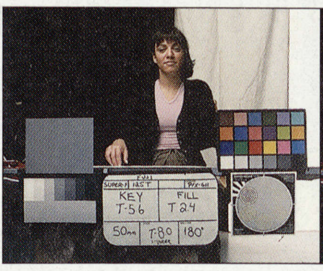
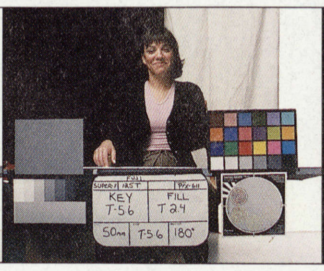
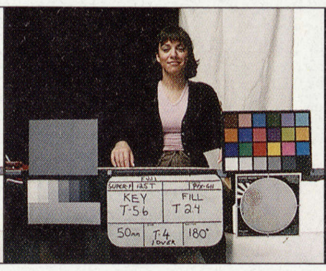
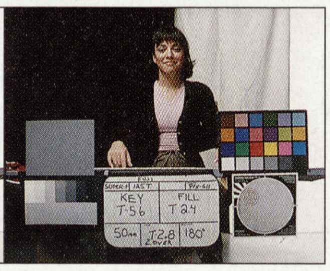
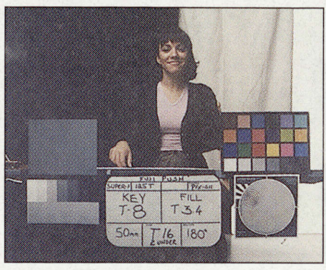
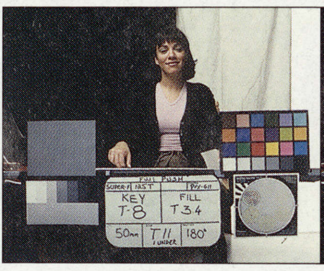
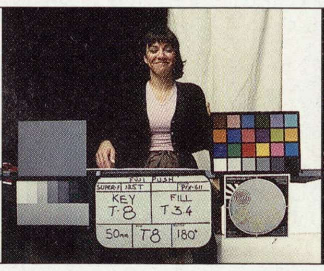
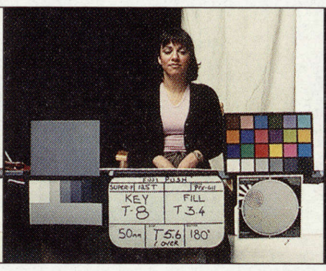
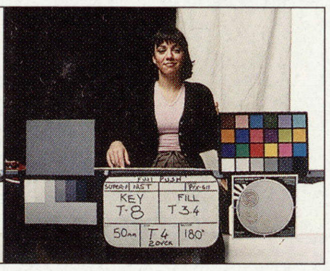




	Two Stops Under	One Stop Under	Normal	One Stop Over	Two Stops Over
PULL PROCESS	N – .46, .90, 1.07 PL – 11, 17, 7 P – 1.12, 1.08, 1.05	N – .58, 1.03, 1.22 PL – 16, 21, 12 P – 1.08, 1.01, 1.01	N – .71, 1.16, 1.40 PL – 22, 27, 19 P – 1.10, 1.07, 1.06	N – .85, 1.29, 1.57 PL – 28, 32, 25 P – 1.07, 1.04, 1.02	N – 1.00, 1.43, 1.74 PL – 34, 37, 32 P – 1.09, 1.07, 1.09
NORMAL PROCESS	N – .39, .83, 1.04 PL – 9, 13, 5 P – 1.19, 1.01, 1.03		N – .71, 1.17, 1.41 PL – 22, 27, 19 P – 1.12, 1.07, 1.07	N – .87, 1.33, 1.58 PL – 28, 33, 36 P – 1.07, 1.04, 1.08	N – 1.01, 1.49, 1.74 PL – 35, 40, 32 P – 1.13, 1.10, 1.04
PUSH PROCESS	N – .39, .84, 1.16 PL – 8, 14, 9 P – 1.09, 1.02, .99	N – .55, .98, 1.30 PL – 14, 19, 15 P – 1.04, 1.01, 1.03	N – .76, 1.18, 1.48 PL – 23, 26, 22 P – 1.06, 1.00, 1.05	N – .91, 1.37, 1.63 PL – 30, 35, 27 P – 1.10, 1.09, 1.04	N – 1.10, 1.62, 1.82 PL – 37, 43, 34 P – 1.04, 1.03, 1.02

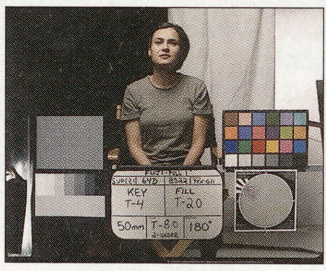
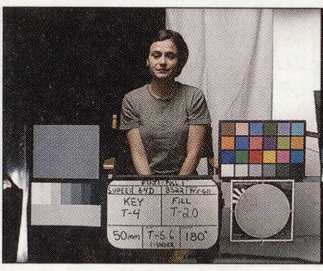
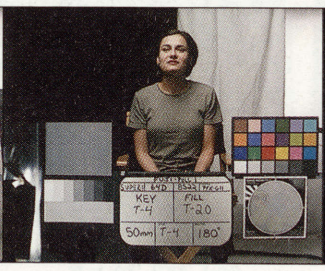
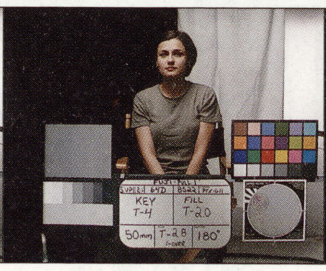
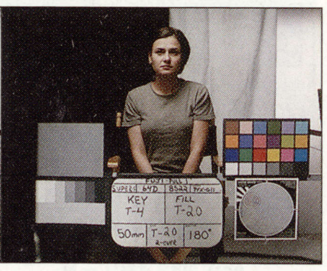
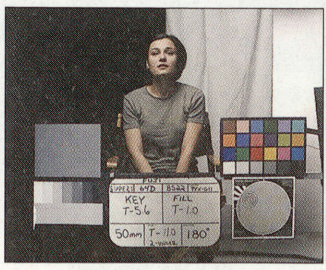
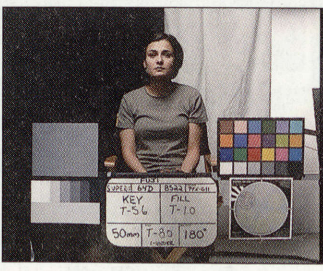
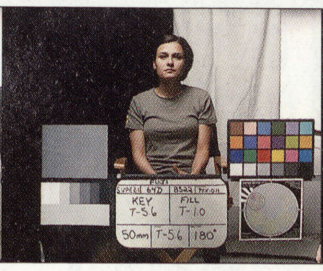
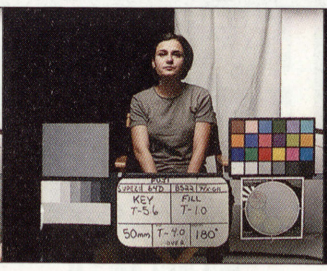
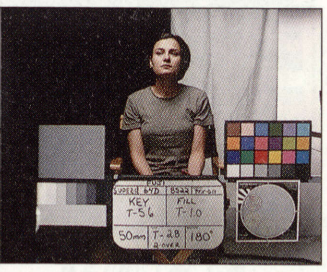
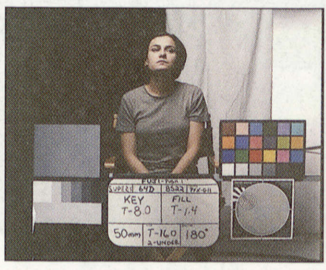
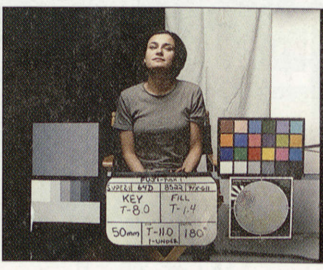
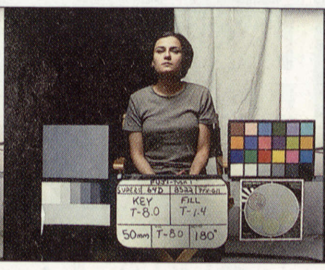
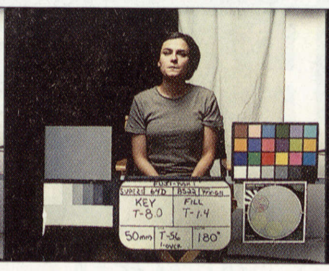
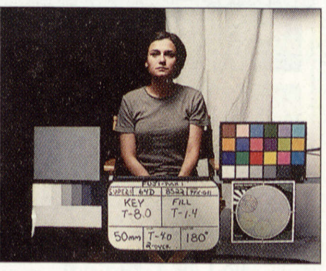
Fuji Super-F 8532 — 125T

N = Negative density PL = Printer lights P = Print density

Two Stops Under	One Stop Under	Normal	One Stop Over	Two Stops Over	
 N – .43, .78, 1.02 PL – 9, 10, 4 P – 1.09, .94, 1.01	 N – .58, .93, 1.17 PL – 15, 18, 10 P – 1.09, 1.07, 1.04	 N – .73, 1.07, 1.33 PL – 22, 23, 16 P – 1.10, 1.04, 1.04	 N – .90, 1.24, 1.53 PL – 29, 30, 24 P – 1.09, 1.05, 1.06	 N – 1.02, 1.37, 1.69 PL – 34, 35, 30 P – 1.10, 1.06, 1.07	PULL PROCESS
 N – .39, .74, .99 PL – 7, 10, 3 P – 1.10, 1.03, 1.03	 N – .53, .90, 1.15 PL – 13, 16, 9 P – 1.10, 1.03, 1.04	 N – .70, 1.09, 1.34 PL – 19, 23, 15 P – 1.07, 1.03, 1.01	 N – .84, 1.24, 1.48 PL – 26, 30, 22 P – 1.09, 1.05, 1.07	 N – 1.00, 1.44, 1.70 PL – 33, 37, 29 P – 1.08, 1.03, 1.02	NORMAL PROCESS
 N – .32, .66, 1.00 PL – 4, 7, 3 P – 1.09, 1.02, .99	 N – .51, .88, 1.22 PL – 12, 15, 11 P – 1.12, 1.02, 1.02	 N – .65, 1.06, 1.37 PL – 18, 23, 18 P – 1.12, 1.06, 1.07	 N – .81, 1.29, 1.53 PL – 25, 32, 24 P – 1.12, 1.04, 1.04	 N – .99, 1.54, 1.70 PL – 32, 41, 30 P – 1.09, 1.05, 1.05	PUSH PROCESS

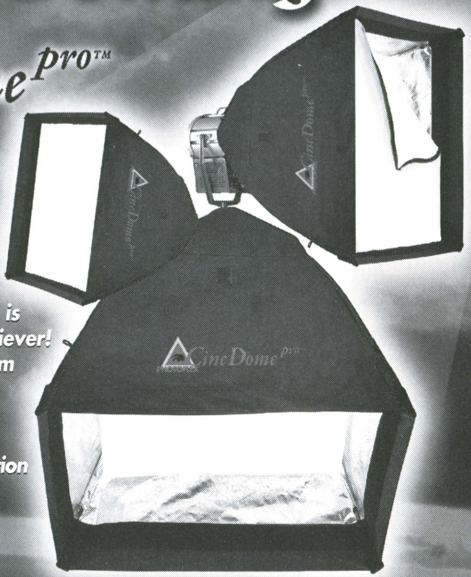
Fuji Super-F 8522 — 64D

N = Negative density PL = Printer lights P = Print density

Two Stops Under	One Stop Under	Normal	One Stop Over	Two Stops Over	
 N – .46, .77, 1.15 PL – 9, 11, 9 P – 1.03, .99, 1.01	 N – .58, .90, 1.31 PL – 15, 16, 15 P – 1.06, 1.00, 1.00	 N – .72, 1.03, 1.47 PL – 21, 21, 22 P – 1.07, 1.00, 1.05	 N – .86, 1.19, 1.66 PL – 27, 28, 29 P – 1.09, 1.06, 1.07	 N – .98, 1.34, 1.84 PL – 31, 33, 35 P – 1.02, 1.02, 1.03	PULL PROCESS
 N – .42, .74, 1.13 PL – 8, 10, 8 P – 1.07, 1.00, 1.00	 N – .54, .87, 1.28 PL – 13, 15, 14 P – 1.06, 1.01, 1.00	 N – .68, 1.03, 1.47 PL – 19, 21, 21 P – 1.05, 1.00, 1.00	 N – .81, 1.19, 1.64 PL – 25, 28, 28 P – 1.04, 1.03, 1.02	 N – .98, 1.39, 1.83 PL – 32, 36, 35 P – 1.08, 1.07, 1.05	NORMAL PROCESS
 N – .34, .67, 1.15 PL – 4, 7, 9 P – 1.07, .98, .99	 N – .51, .85, 1.37 PL – 12, 14, 18 P – 1.07, .99, 1.03	 N – .66, 1.03, 1.54 PL – 18, 21, 24 P – 1.10, 1.02, 1.02	 N – .81, 1.25, 1.70 PL – 24, 29, 30 P – 1.05, .98, 1.03	 N – .98, 1.49, 1.86 PL – 31, 39, 36 P – 1.05, 1.05, 1.02	PUSH PROCESS

the light-source intensity remained the same, while over- and underexposure bracketing was achieved via changes to the lens T-stop. For each batch of tests, the T-stop was altered to achieve a normal exposure (at the key level), one- and two-stop underexposures and one- and two-stop overexposures. Each of these iterations was then "printed back" to normal based on the densitometer readings from the 18% gray card. This test was designed to demonstrate how each of the emulsions reacts to varying levels of under- and overexposure when being "timed back" to normal density on the 18% gray card (see sidebar on densitometry in the foldout section). None of the lighting levels were altered at all during these tests.

Both of the daylight-emulsion tests (64D and 250D) were lit with HMI lamps balanced to be within +/- 50K of 5,500K. Both tests were lit to a "normal" key of 5.6, which necessitated a relight between the 64D (with a key source of approximately 610 fc) and the 250D (with a key source of approximately 156 fc). For the tungsten tests, all three emulsions were tested with the same lighting setup (a key source of approximately 318 fc). Allowances for the differences in film speeds were compensated for on the lens by altering the base T-stop. For the 125T emulsion, the normal process, normal exposure was made at a stop of T5.6 (318 fc); for the 250T test, we changed the base stop to a T8 for the normal/normal iteration, and for the 500T stock, we set our base at a T11 (maintaining a key source of 318 fc for all tests). Using one base-lighting level allowed us to maintain a consistent lighting balance for all of the tungsten tests. However, when we exposed the 500T push-process at the "two stops underexposed" iteration, it was necessary to employ a Schneider Neutral Density .3 filter over the lens to achieve a proper lens stop of T32. This was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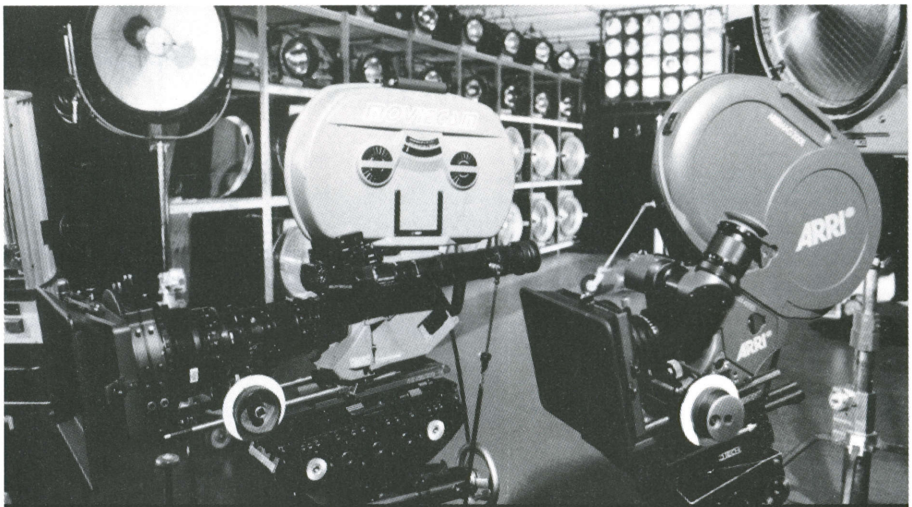
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the only time a filter was used during the Fuji emulsion tests.

THE RESULTS

All of the iterations from the test appear in the foldout section. A considerable amount of information can be derived from close examination and comparison of the exposures and processes. It is important to stress that every consideration has been made to present the truest representation of the film-printed iterations here. However, because of limitations in the CMYK color-printing process, the images we've presented can only be deemed illustrations, not actual duplications, of the results seen in the positive images on a film print.

To help the reader analyze the information contained in each iteration, we have also included all of the densitometer data and printer-light information below each iteration. These numbers represent, respectively, the original camera negative's density, printer lights and positive density for that exposure variation. The iterations are organized to have all of the "normal" exposure images in the center of each row of five. The first row of five images for each emulsion are the pull-process results, the second row are the normal-process results and the third row are the push-process results. Unfortunately, due to a technical error, there is no information available for the 250T normal-process, one-stop underexposed iteration.

We emphasize that all of the iterations appearing here are made from a print of the tests, not the original camera negative. All of the tests were printed to Fuji's F-CP (3519) print stock directly from the original camera negative; those positive images were then scanned for inclusion here. There were no internegative or interpositive steps involved in the test. As a result, the images appearing here are as true a representation of the characteristics of both the print and negative stocks as possible.

Beyond the specific performance of the Fuji Super-F Series of motion-picture films, practical examples of variations in negative treatment can be clearly seen. A valuable comparison to consider is evaluating the iterations from a pull-process, one-stop-underexposed image with a normal-process, normal-exposed image and a push-process, one-stop-overexposed image to observe the contrast control with the exact same lighting values (i.e., each of those iterations was made with the same T-stop exposure, but with different processing treatments). The organization of the images allows the reader to make these comparisons by examining any diagonal pattern (from upper left to lower right on the page) of the iterations.

GENERAL IMPRESSIONS

One of the interesting aspects of viewing the tests projected, and by close examination of the prints of each iteration, is the number of rings visible in the sharpness-indicator chart. These differences are not necessarily discernible in the images on the following pages, so in the interest of passing on the information, these were our basic findings:

Overall, with the exception of only the 500T push-process, one-and two-stop-overexposed iterations, we noted a significant decrease in apparent sharpness with overexposure. Although it might be discerned that the opposite would be true (more apparent sharpness with underexposure), we only noted a slight, overall increase in apparent sharpness with one-stop-underexposed iterations. At two stops underexposed, the apparent sharpness decreased again.

Comparing the three developer processing variations (pull, normal and push), we noted a significant increase in apparent sharpness with push-processing. The two iterations with the highest apparent sharpness (i.e., the most visible rings) were the 64D push-processed and one stop underexposed and the 64D normal-processed and two stops underexposed.

Also of note is an overall color shift as a result of either push- or pull-processing. With the Fuji stocks, a fairly significant overall shift toward green is notable in push-processing; likewise, an overall magenta shift is apparent with pull-processing. However, it must be taken into account that all of the color timing choices were made to place the 18% gray card at exact LAD. In normal color timing for flesh tones, these overall shifts can be corrected with the slight expense of a biased gray tone.

The grain in the Fuji films responded to varying levels of exposure and processing generally as one would expect: underexposure yielded the most noticeable increase in grain, especially with the addition of push-processing. With all of the stocks, pushing the film increased the grain substantially. Conversely, pulling greatly reduced the grain. However, we did not observe any significant increase or decrease in overall grain with overexposure iterations in any of the three development processes.

Keep in mind that in addition to the limitations of CMYK printing, grain quality is derived more from a comparison of grain structure in successive frames in a moving image, and is not necessarily clearly discernable in a single still frame. To best discern the grain quality in still images, compare the 18% gray cards from one iteration to the next.

Also, across the line of the Super F-Series, all of the negatives have what I would deem a "soft" color palette, resulting in very pleasing skin tones and overall color rendition. Additionally, with a pull-process development, this color palette becomes even softer — almost pastel in feel. It is definitely a desaturated color look, though not to the detriment of the overall contrast, which still remains acceptable (as opposed to some alternative desaturation techniques, such as ENR, which increase the contrast considerably). Overall, this is a much softer look.

The majority of the Super-F series exhibits very strong black levels with normal exposures and overexposures. Pull-processing tended to produce the strongest blacks of the three processes across the line. Examining the single frames cut from the print, I placed a sheet of typing paper between the slide and the surface of the light board and compared the iterations to see if I could discern the pattern of the paper through the black levels in the images. With the majority of the stocks, I could only discern a pattern with pull-processing in the two-stops-underexposed iterations.

SPECIFIC IMPRESSIONS

In examining the whole range of stock iterations, I made the following observations about their imaging characteristics.

8522 64D

Contrast

With normal processing, the 64D is a fairly contrasty stock to begin with. Examining the shadow detail on the face of model Natasha Milasinovic, small lines and curves are accentuated by an increased contrast reproduction. Interestingly, when the stock is pull-processed, this contrast remains fairly consistent.

Without a doubt, we see an increase in contrast through both overexposure and push-processing. This is most evidenced by comparing the shadow quality of Natasha's face back to the normal-process, normal-exposure iteration. With push-processing at two stops of overexposure, the highlights and shadows on her face are blocked up pretty tightly.

Blacks

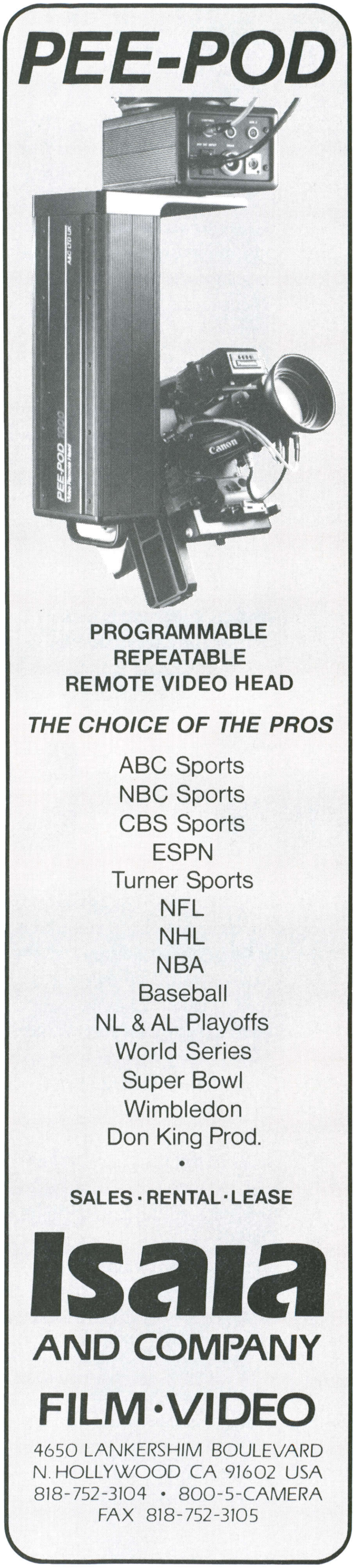
When timed to our gray scale, the 64D stock tended to milk toward a greenish hue in the underexposed blacks. This is especially evident in the push-processed, one- and two-stops-underexposed iterations. Even at one-stop underexposed with normal processing, we begin to see a fairly substantial green bias in the blacks. Pull-processing held the blacks strongly with one stop of underexposure, but started to go greenish and milky at two stops underexposed.

Grain

For a slow-speed, daylight stock, the 64D exhibits rather typical grain structure in normal-process, normal-exposure iterations. This tight grain holds well with pull-processing, even at two stops underexposed. Push-processing, of course, tends to bring out more of the grain in the emulsion, especially with underexposure, although the only completely undesirable result was yielded with the push-processed two-stop-underexposure iteration.

Color Saturation

This stock has a most decidedly desaturated look. Skin tones are very washed out and nearing a pale off-white cast even in the normal-process, normal-exposure iteration. Also, compare the Caucasian flesh-colored tile on the top row (second from the left) of the MacBeth color chart with the other stocks in the Fuji line. There is very little color saturation in this tile at all. Further, two very interesting tiles to examine on the MacBeth chart are in the second row from the top (the two far-right-hand tiles). In the normal-process/normal-exposure iteration, I might call these colors (respectively from left to right) Yellow-Green and Orange-Yellow. In the normal-process iterations, as we overexpose, the relationship between these two colors stays pretty much the same. However, as we underexpose, the two converge in their hues to represent



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very similar qualities in the two-stops-underexposed, normal-process iteration. Fairly evenly throughout the pull-process, the two tiles reflect the same close relationship in hue as they did in the normal process, two-stops-underexposed iteration. With push-processing, the Yellow-Green holds much of its own properties throughout the exposure variances, but the Orange-Yellow varies, especially in underexposure when the overall saturation and hue tends to drop.

8532 125T

Contrast

The pull-process variations here are some of the only instances in the tests with model Tamara Balyan that we can begin to differentiate between the back fabric of her sweater and the Duvetyn hanging behind her. Also, in an interesting phenomenon that I doubt will be reproduced in CMYK printing, Tamara's hair color and quality changes drastically from pull- to normal- to push-processes. In the pull-process, normal iteration (or even two stops overexposed), her hair has a very "soft" auburn quality. As we move to normal and then to push-process, her hair takes on a much thicker and darker color, with a significantly wiry appearance.

Grain

Grain is fairly tight in the 125T stock. Only with push-processing at two stops underexposed would I begin to call the grain level undesirable. Even with a normal process at two stops underexposed, it is only borderline as far as being too much grain for me. Again, as would be expected, the push-processing increases the grain, and the pull-processing decreases it.

Blacks

Across the processing variances, two stops underexposed yields pretty milky and undesirable blacks. Unlike the 64D, however, 125T's underexposed blacks stay much more neutral gray in color and do not render a greenish hue.

Color Saturation

Returning again to my two favorite tiles, we can see the same type of relationship happening, though not as drastically as with the 64D. The two tiles seem to hold their relationship with one another much better than the previous stock, even though their saturation increases or decreases with pushing and pulling, respectively. Another interesting thing to examine is Tamara's pink top (which I might call a pale lavender), and how that color changes dramatically between pull-, normal- and push-development variations. The most color variation within a single process is the pull-process, where the pale lavender of her shirt increases slightly in saturation with more and more exposure. Overall, though, the value of the shirt stays the same within each process layer.

8552 250T

Contrast

Again, as with the 125T, I can discern the difference between Tamara's sweater and the Duvetyn with the pull-process one and two stops overexposed. Contrast blocks up quite a bit with push-processing two stops overexposed.

Grain

Overall, the grain is slightly higher than I would like for a medium-fast stock, but not unwieldy. The pull-processing variations produce a very pleasing grain structure, but push-processing accentuates the grain a bit too much for me.

Blacks

With all processes at two stops underexposed, we lose desirable quality in the blacks. With the push-process variation, even at one stop underexposed, the blacks have a heavy, milky quality. This stock begins to exhibit the same underexposure behavior that the faster 500T does.

Color Saturation

There is no significant difference in color saturation behavior throughout the iterations from the rest of the Fuji Super-F series.

8562 250D

I must say that the 250D is, by far, my favorite of the Fuji stocks. It seems to be the most robust of all the Super-F emulsions, and it handles the most abuse (pull/push, over/under) with the most consistent and best results. The 250D also matches extremely well with the 250T; you could cut back and forth between them all day long and no one would know. I like the idea of two stocks -- a tungsten and a daylight film -- having the same speed, although I still feel that the overall tonal qualities and performance of the 250D is slightly superior to its tungsten cousin.

Contrast

The contrast is extremely pleasing, even with a push-process, one- and two-stop overexposure. Pull-processing does not produce an over-exceedingly soft contrast.

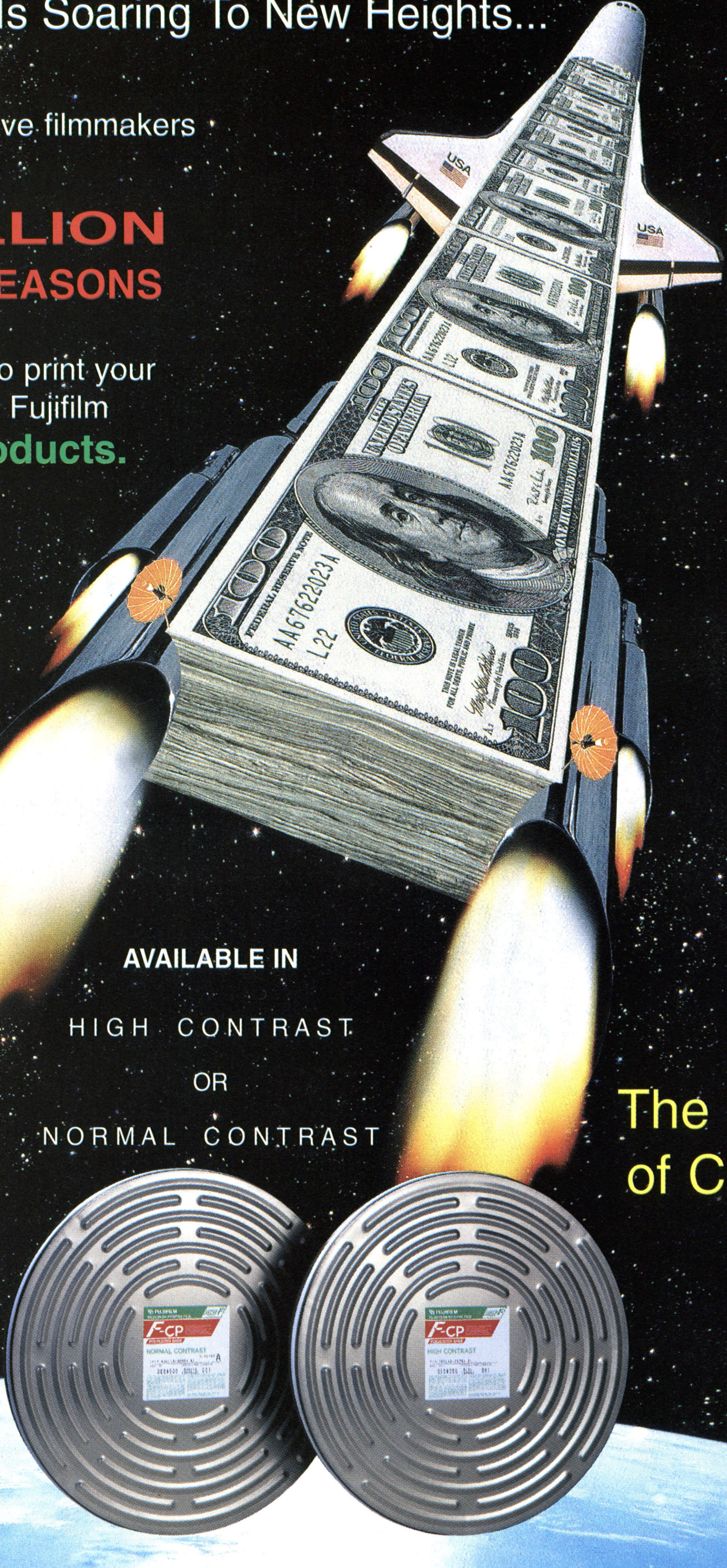
Grain

The grain here is fantastically tight — by far the best of the Fuji stocks, in my view. I would venture to say that this stock has even tighter grain than the 125T. Even with push-processed iterations, the grain holds very well.

Blacks

The blacks exhibit the same superior quality as the other attributes of this stock. Even with push-processing and one-stop underexposure, the blacks are still surprisingly strong. This stock also yielded the most linear response to over- and underexposre with all three processes. The blacks are extremely strong, yet not blocky and overbearing even with push-processing two stops overexposed. The only iteration in this test that yielded slightly undesirable blacks was in the push-processed, two-stops-underexposure iteration.

➢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Color Saturation

Pulling this stock creates a wonderful soft color palette, while still remaining quite true to the original colors. Like the black response to over- and underexposures, the color saturation responds in a very linear fashion, without any real peaks and troughs after pull- and push-processing. The colors are never overbearing or too desaturated, even at the exposure extremes. The skin tones stay remarkably true throughout processing and exposure variations, and the overall green/magenta shift with pull- and push-processing is the least obtrusive with this stock.

8672 500T

Contrast

This is a naturally contrasty stock from the outset. Even with the normal process, normal exposure, the shadows on Tamara's face block up a fair amount. With a push-process and at two stops overexposed, the stock almost begins to emulate a cross-processed look in terms of very limited contrast range.

Grain

This is, by far, the grainiest of the Fuji stocks, especially with push-processing. Even at normal exposure with push-processing, there is a considerable amount of large, discernible grain. With a push-process at two stops underexposed, there is extremely dramatic grain in the image. Even with a pull-process, at two stops underexposed, the stock borders on having too much grain for my liking. However, the pull-process, one-stop-overexposed iteration has very nice grain for a fast stock.

Blacks

The 500T loses black quality very quickly with underexposure variations. With a normal-process, one-stop-underexposure treatment, the stock already begins to exhibit milky blacks. With a normal-process, two-stop underexposure, the blacks are not workable, in my opinion. The blacks in this stock do not seem to like push-processing very much at all. Even the normal exposure with push-processing is already losing the black level, though not to an impossible level. Interestingly, though, I can actually discern a difference in value between Tamara's sweater and the Duvetyn in most of these iterations, until we get to about two stops overexposed with the normal process.

Color Saturation

The 500T yielded the most dramatic shifts in color saturation with pull- and push-processing than any stock in the Fuji line. This shift is probably most discernible in the yellow tile on the MacBeth color chart (third row, fourth tile from the left). With normal processing and normal exposure, we set the base of

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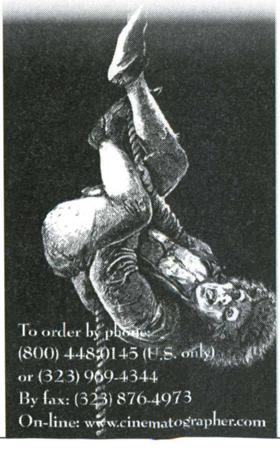

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our yellow. With pull-processing at normal exposure, we have a significantly paler yellow, and with push-processing at normal exposure, that yellow is screaming! Kick that up two notches to push-process with two stops overexposure and it is practically Nuclear Neon Yellow.

CINEMATOGRAPHERS' TESTIMONIALS

Perhaps some of the strongest support for Fujifilm's new Super-F series comes from cinematographers themselves. When Fuji unveiled the updated series, the company asked several of the industry's leading directors of photography to examine the stocks.

Veteran cinematographer John Alonzo, ASC, whose work on Roman Polanski's *Chinatown* earned him an Academy Award nomination, spent some time putting Fuji's 64D (8522/8622) and 125T (8532/8632) stocks through their paces. Working in and around San Diego's SeaWorld, Alonzo's sequences were brightly sunlit, color-saturated environments. "I was delighted to test these new stocks," Alonzo offers, "and I found that they have wonderful color contrast."

One of Alonzo's first setups was of SeaWorld's famous killer whale, Shamu, bursting up out of a crystal-clear pool of water. At a shooting stop of T11 with ND.3 on the lens (64D 8522), Alonzo felt the scene "seemed to represent very much what the human eye sees. As opposed to a very color-contrasty shot, this stock has a softer contrast. It seems to manipulate itself so that the colors are represented in a way that's very true to life."

Another of the shots in the 64D test was of a Beluga whale photographed underwater through the wall of a viewing tank. Alonzo details that "the interesting thing about the Beluga whale shot is that there was no filter on [the camera], and the blue [of the water] seems to have this nice, velvet look. Even though the shot was slightly underexposed, the integrity of the colors still seems to hold up very well."

Geoff Boyle, a U.K. commercial cinematographer and the founder of the Cinematographer's Mailing List, an Internet forum for professional cinematographers around the globe, was asked to test Fuji's 250T (8552/8652) and 250D (8562/8662) emulsions. The backdrop for the test — aptly titled "Splat" — is a daylit, winter woodland under a deeply overcast sky. The test follows a team of paintball warriors through the final stages of a battle. The demonstration is lush with green foliage and a cool, soft, overhead light filtering through dense trees. "It was rather bizarre for

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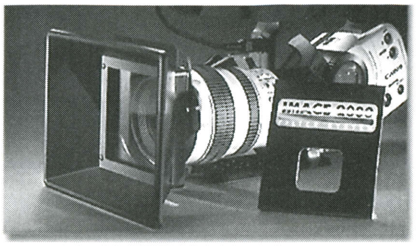

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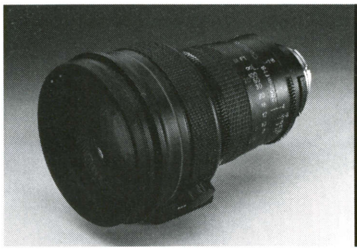

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me to be asked to shoot a Fuji demo, because I've always vocally rejected the Fuji stocks and refused to shoot them at all," Boyle admits. "But I've always asked for a low-contrast stock, and I think they were gambling that I would find what I was looking for in the Super-F stocks.

"I [was always] an Agfa man," Boyle attests. "I loved the Agfa 250, and I miss it terribly. For years, I had been screaming for a lower-speed, lower-contrast stock — something like a 200 ASA Prime Time — because all of my work is posted digitally. Almost none of my work is printed, and if it is, it's printed after it has gone through a digital post process and been recorded out to laser. I'm therefore interested in a stock that has a wide range of handling, especially in terms of contrast, so that when it comes to telecine or scanning, I've got more room to maneuver."

Boyle says he was "extremely pleasantly surprised by the Fuji 250 stocks. They definitely have more highlight detail than I've seen before, and they seem much gentler in the shadows as well. Fuji seems to have kept the midrange the same, but they've stretched the toe and shoulder out. As a result, you get a midrange with a reasonable punch, and highlights and shadows that go on forever.

"The light I shot 'Splat' in was just dreadfully dark. It was midday on a 250 [ISO] stock, and I was shooting at around T2.8! But the Fuji responded beautifully to the low-light areas, reading details into the shadows I wouldn't have imagined would be there, while still holding the highlights. Since the test, I've used the 250 stocks on several commercials, and I've always been very happy."

The cinematographer says there was just one instance when the Fuji film seemed to be a poor choice. "I chose the 250T stock for a science-fiction-themed commercial, but I later felt that the emulsion was a bit too gentle for the genre. I would have preferred a sharper, more contrasty look for that spot. Overall, Fuji stock has a much more laid-back look, which is really wonderful most of the time. For a number of model beauty portraits I'm shooting this coming week, I'm turning to the Fuji."

Boyle continues, "A few weeks ago, a fellow cameraman asked me what I felt about the Fuji stocks. I thought about it and realized that for me, it comes down to a simple choice. Just as I have always decided between Cooke and Zeiss lenses or a C-Reality and a Spirit for a specific look on a project, I now have a viable choice between Fuji and Kodak. Each company's stocks have their own look, and bring something different to the overall image. Today, most of the stocks, lenses and telecines have gotten much sharper, and what you end up with is a rather brutal image! If you use a gentler film stock for certain jobs, it can help a lot."

Sue Gibson, the first female cinematographer invited to join the BSC, pushed the limits of Fuji's 500T (8572) in her test, titled "Lights." In the test, an African-American actor wearing a black leather suit walks through a darkened landscape, extinguishing each light source he comes across. The scenario creates a wide range of contrast ratios, from pitch black to sources that are more than eight stops overexposed. "I've been a longtime user of Fuji film," submits Gibson. "I often preferred the previous 500T (8571) over any other stock. The new version has a much finer grain structure. It also has much a better black quality in the shadows, and it seems to have a bigger contrast range. The new 500T actually seems to hold the highlights better in comparison to the blacks, which is saying quite a bit because the previous stock did a fine job. The stock is also much more sympathetic toward skin tones, particularly in conditions where you are pushing

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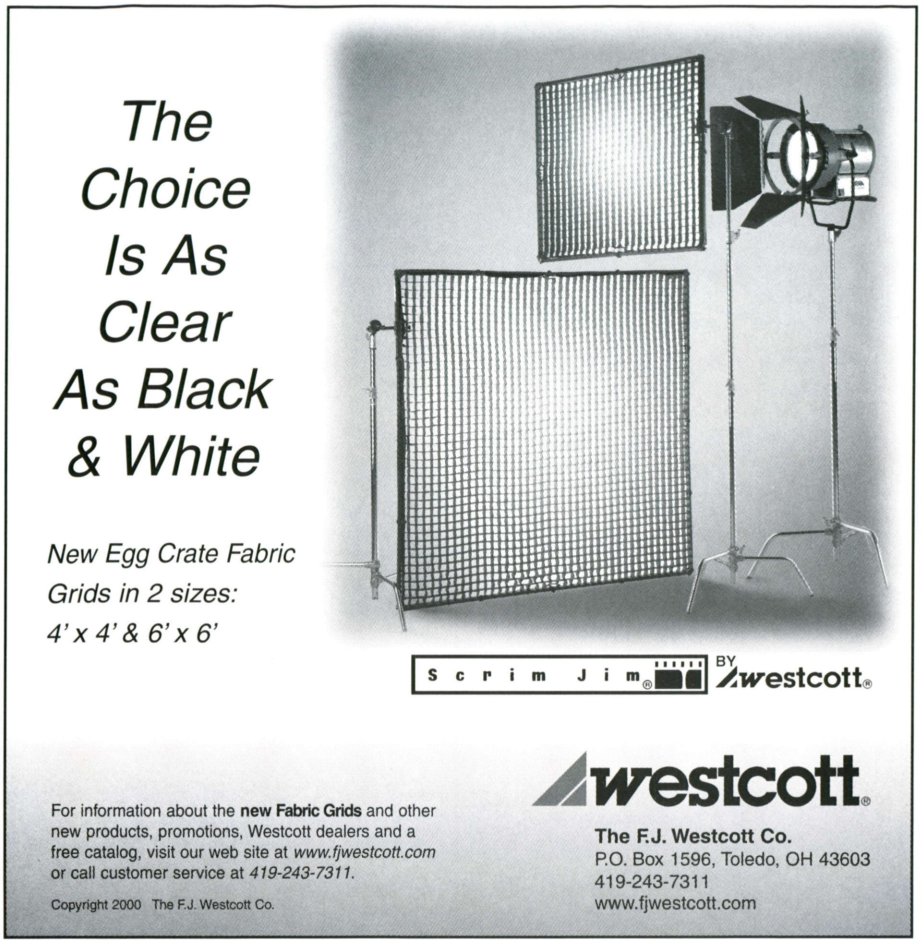

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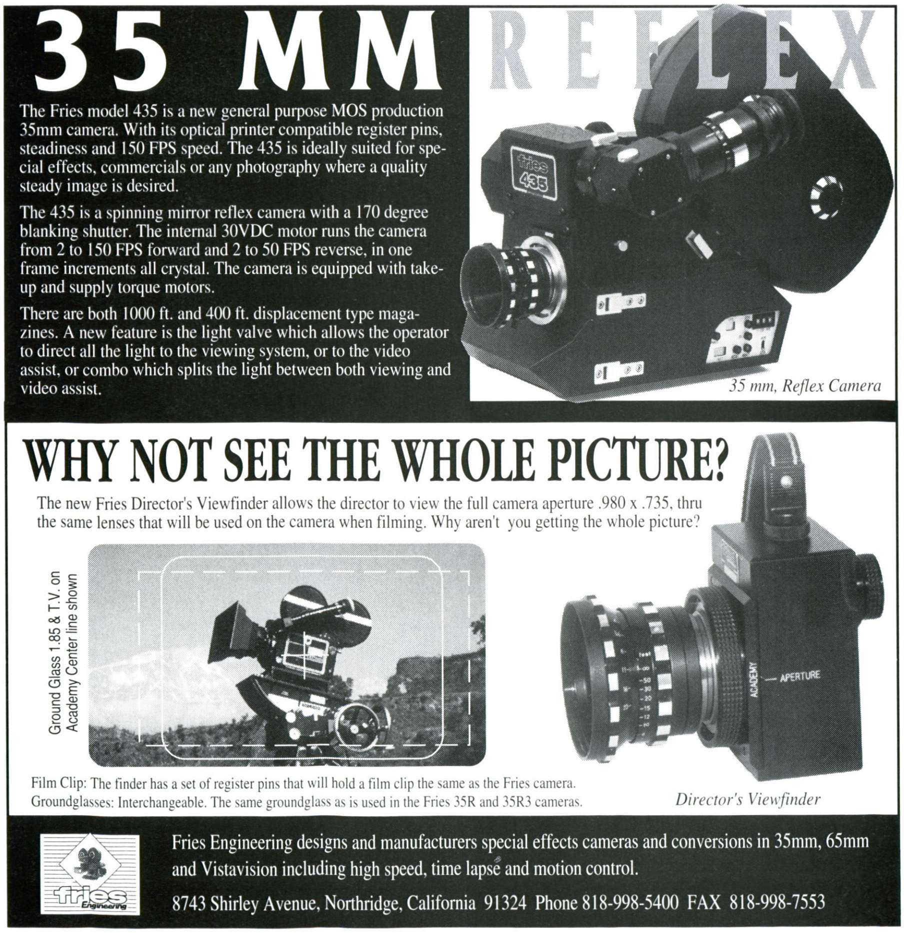

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There are both 1000 ft. and 400 ft. displacement type magazines. A new feature is the light valve which allows the operator to direct all the light to the viewing system, or to the video assist, or combo which splits the light between both viewing and video assist.

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the stock to its limits, which is what I did on 'Lights.'

"I recently just finished a television film called *Tube Tales,* which was shot entirely in the London Underground," she continues. "Because of the restrictions down there, most of the film was [exposed using] purely available light. In fact, the 500T was the only stock I could use. I was happily pleased with it, especially since I was able to have the latitude to approach an almost entirely available-light film in a high-key style.

"I'm a bit biased, obviously, because I like Fuji film. One of the points of the Super-F series I like the most is the actual range of speeds they provide. For instance, if you use the 250 tungsten stock and you go outside, there is also a 250 daylight stock, so you don't have to change your brain or your eye in terms of how it assesses amounts of light. Not having to readjust my eye while I'm shooting is a fantastic benefit that allows me to keep the production moving and keep my work consistent." ■

Our most heartfelt gratitude is extended to those companies and individuals who made this test possible: Bruce Burke, Andy Coradeschi and Mac Jibiki at Fujifilm Hollywood; Tracy Langan, and Frank Kay at Panavision Woodland Hills; Kevin Stople and Dave Golder of Hollywood Rentals, Burbank; Michael Holmes of Kino Flo; Vickie Curry at Foothill Studio Equipment Rental, Idealease; and Cyril Drabinsky, Ron Koch, Dash Morrison, Tom Kuhn and Mary Quan of Deluxe Hollywood.

Thanks also to our crew: Operator Michael Santy, SOC; camera assistants Kevin Boyle and Ryan Gaw; key grip Tony "Bones" Thomas; and models Tamara Balyan and Natasha Milasinovic.

The editors are grateful to Robert Primes, ASC, Allen Daviau, ASC and David E. Williams for their support and input.

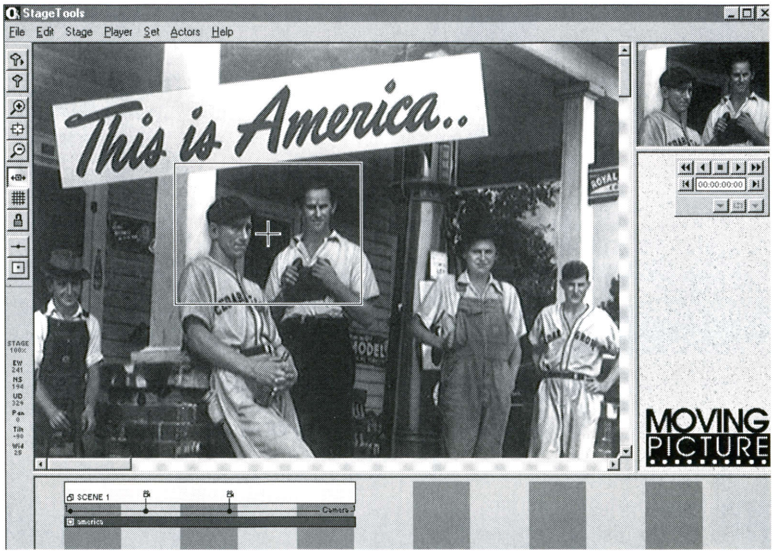
New Products & Services

compiled by Douglas Bankston

Moving Pictures on the Desktop

StageTools of Middleburg, Va., headed by Bill Ferster, has a simple and efficient software solution for pan and zoom camera moves on still pictures, which are popular in documentary and educational films. With the company's MovingPicture program, what used to be accomplished on time-consuming rostrum cameras and animation stands can now be done digitally with high-resolution images (up to 4,000 x 4,000 pixels) on a desktop personal computer.

MovingPicture accepts a wide variety of picture formats, including JPEG, TIFF, BMP, Targa, PNG, PCX and GIF. A virtual camera can be moved around the picture by dragging the yellow box reticle overlaid on the picture. This reticle outlines what the camera sees, which is shown in the viewfinder window. As the camera box is moved around or resized, the image in the viewfinder window reflects the change. By quickly selecting key frames using the virtual camera's reticle and saving them to the timeline at the bottom of the screen, a camera motion path is created.



MovingPicture uses an animation-stand metaphor, in which the large image represents the image on the camera's stage that would be moved around. The small monitor window to the right offers a view of what is being seen through the camera's yellow box viewfinder. By dragging and sizing the yellow box, the view is changed on the stage. Viewfinder positions are set by adding keyframes onto the timeline at the bottom of the screen.

Moves will play in the viewfinder and can easily be changed, with holds, fades and rotations added at any point. Moves can be saved and replayed on other pictures. All moves are smoothly splined with tapered motions.

The motion path will play in real time without rendering using an OpenGL 3D accelerator card. The card will also allow high-quality video output of the motion in real time. The system will function with the use of an OpenGL card, but rendering of the motion path will be necessary in order to do so.

With a video output or scan converter attached to the OpenGL card, a programmed move can play directly into a VCR or non-linear editor in real time. Low-resolution AVI movie files can also be created, as well as compact VRML animations for Internet use.

Computer requirements for the MovingPicture software include a Pentium or Pentium-class processor; good results are obtained from a 133mHz system (preferably 300mHz or faster) and at least 32MB of memory (preferably 64MB or 128MB). MovingPicture runs on Windows 95, 98 or NT. Using Connectix's VirtualPC allows the software to run effectively on Apple iMac- and G3-based systems.

StageTools, (540) 592-7001, fax (540) 592-7060, e-mail: bferster@stagetools.com, Web site: www.stagetools.com.

Tape-to-Film Transfer the Swiss Way

Swiss FX, based in Zurich and New York, specializes in transferring videotape to film negative, but unlike companies where transfer is thought about during the post process, Swiss FX involves itself in the production from the beginning.

Over the last eight years, Swiss cinematographer Patrick Lindenmaier has developed a proprietary transfer system using computers to transfer high-quality images to film from any brand of video and digital video camera. Swiss FX is involved with productions from the outset because their transfer process is camera-specific. Through testing, the company determines the settings on its transfer system, as well as on the particular camera to be used, that will yield the best image resolution for transfer or blow-up to film. Swiss FX's Web site provides filmmakers and cinematographers with preproduction camera adjustments for digital video cameras that will be used with a 35mm transfer in mind.

Several examples of Swiss FX's transfer work were seen at this year's Sundance Film Festival, among them *Chuck & Buck, Everything Put Together* and *julien donkey boy*, and the documentaries *The Ballad of Ramblin' Jack, Long Night's Journey Into Day* and *Paragraph 175*. Other recent documentaries handled by the company include *In Search of Kundun with Martin Scorsese* (see *AC* Jan. '99), *On the Ropes* (*AC* April '99) and *Bus Riders Union* (shot by Haskell Wexler, ASC).

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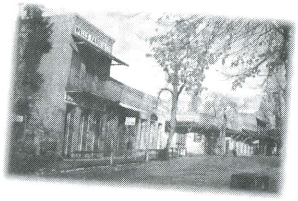

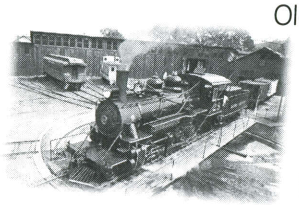

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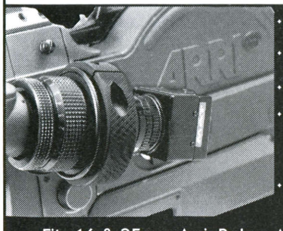

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Using a machine of its own design, Swiss FX will up-res every frame to 2K resolution before transfer. The unique aspect of the process is that the picture is never recorded to a hard drive, but rather stays in the computer's RAM memory, which can hold five low-res images or four high-res images, at a rate of five frames per second. The images are then exposed to the film at a high speed and quality. Transfers can be made to 16mm, Super 16mm and 35mm. Color timing for film prints is done in the traditional manner in the laboratory.

Director Harmony Korine wanted a Super 8mm look for his film *julien donkey boy,* so Swiss FX transferred the video to reversal 16mm stock to add the grain and color Super 8 normally provides. On the 16mm film only, an area the size of a Super 8 image was exposed and then blown up optically to 35mm.

Though Swiss FX can transfer both NTSC- and PAL-photographed projects, the company recommends shooting with PAL cameras because of their sharper resolution and similar frame rate to film. Audio transfer is also handled by the company.

Swiss FX also can do 2K printing for high-definition and animation films at a rate of two seconds per frame, with one second per frame on the horizon. By loading the film's EDL and raw material into a computer, one can also edit and print a feature at the same time. Swiss FX also provides film-restoration services.

Swiss FX in New York, (212) 727-3695, e-mail: swisseffects@cs.com. In Switzerland, +41 (0)1 307 10 10, fax +41 (0)1 307 10 19, e-mail: info@swisseffects.ch, Web site: www.swisseffects.ch.

Touching Up With Revival Digital

Nirvana Digital of Singapore has launched Revival Digital, a resolution-independent, motion-picture restoration system. Revival Digital uses a number of novel mathematical models that ensure accurate location and restoration of only the distorted regions in every frame, leaving other areas of the frame untouched. As with other global-filtering strategies, sharp edges will not be blurred, nor will highly textural regions be homogenized in distorted and undistorted image regions. The resulting pictures will not suffer from the loss of detail after restoration.

The system aims to eliminate typical artifacts found in degraded motion-picture materials, such as blotches, dirt and sparkle noise; persistent vertical scratches, grain and speckle noise, and persistent noise. In all cases, bright and dark noise can be handled. Revival Digital restores noise-corrupted motion pictures and transfers the restored pictures to new storage media automatically or with the assistance of an operator.

Four main architectural components make up the Revival Digital system: the Blotch, Dirt and Sparkle Removal panel; the Grain and Speckle panel, which is useful in enhancing the MPEG encoding process by improving compression efficiency; the Persistent Noise panel, which uses the Interactive Region of Interest selection for multiple-frame correction, and the Vertical Scratch Removal panel.

The vertical scratch removal uses an adaptive algorithm that efficiently and effectively conceals vertical scratches in older motion pictures. The process also ensures that only areas of the image that have scratches are processed. Most common types of scratches, including positive and negative, are effectively handled.

Revival digital is specially designed for the telecine transfer process, and special care is taken to protect the crispness and clarity of any subtitles. The system can also automatically handle the 3:2 pull-down characteristic in NTSC conversion. Other applications for the system include tape-to-tape enhancement, preparation of masters for duplication, compression pre-processing, video restoration and telecine grain reduction.

Nirvana Digital Pte. Ltd., (65) 9695-6078, fax (65) 569-5600, e-mail: mnchong@revival-digital.com, Web site: www.revival-digital.com.

HD at Century III

Century III, based at Universal Studios Florida, now offers high-definition (HD) production services. With its new Sony HDVS HDCAM HDW-700A HD camera, Century III can shoot HD, then transcode the footage to 525i with a dramatically better quality from the 2.2 million pixel blocks from HD. The company plans to acquire additional HD equipment to complete its HD operation. Century III has also added an HD Motion-Control Stage with a robotic camera system, one of only three in the world.

In addition to HD production, the full-service Century III also provides film-production, postproduction, special-effects, animation, satellite and fiberoptic services, as well as DVD and multimedia programming.

Century III, (407) 354-1000, fax (407) 352-8662 Web site: www.century3.com.

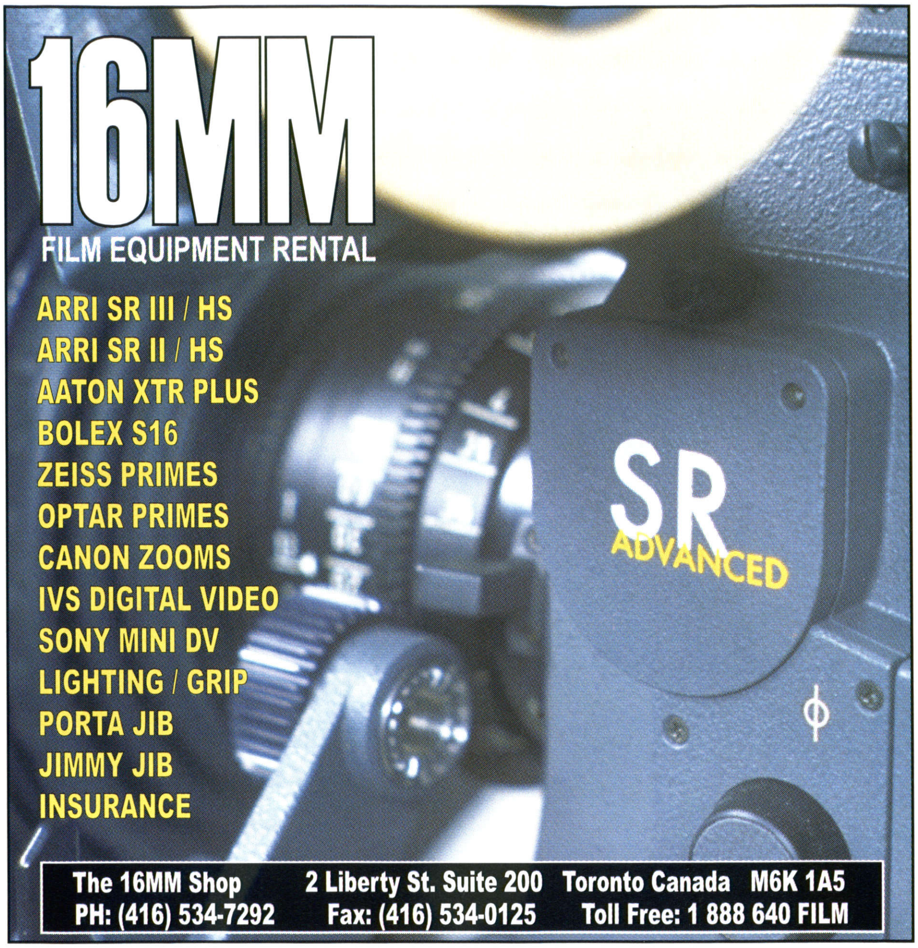
Fletcher Grows in Chicago

Fletcher Chicago has expanded and moved to a new, 24,000-square-foot location at 1000 N. North Branch. Fletcher, specializing in HDTV, film- and video-production equipment rentals and sales, has added an HD screening room, an audio prep room, four camera prep rooms and a showroom that has been doubled in size. Fletcher also provides an early morning/late night rental return and pick-up locker system. The company now offers Sony's 24 fps HDCAMs for rental and sale, in addition to 12 other HD camera models.

Fletcher Chicago, Inc., (800) 635-3824 or (312) 932-2700, fax (312) 932-2799, Web site: www.fletch.com.

HD in the Land of a Thousand Lakes

Hi-Wire has opened its doors in downtown Minneapolis at 555 Nicollet Mall, Suite 391. The postproduction company specializes in full-service creative editorial, film and video, audio and graphic design for the motion-picture, broadcast, cable, closed-circuit and corporate-video industries, with an emphasis on HDTV. Hi-Wire has nine



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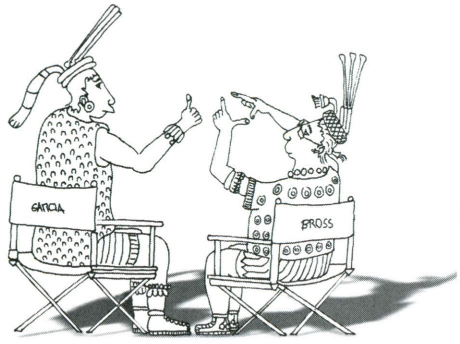

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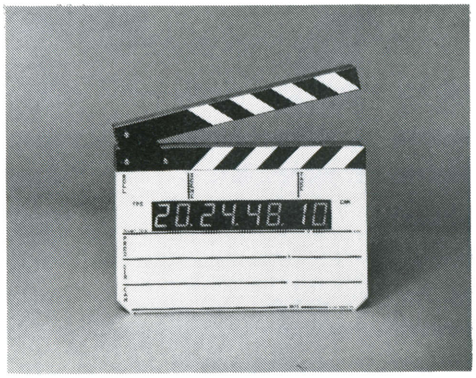

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Hi-Wire, (612) 252-3900, fax (612) 252-3939.

MGM Roars With HD

Illustrating the entertainment industry's gradual shift to the HD realm, MGM Pictures has become the first studio to successfully utilize HD video for the postproduction and preview process on its latest film, *Return to Me* (see next month's issue). The dramatic comedy, which stars David Duchovny and Minnie Driver, will be released this month.

Says MGM's Bruce Markoe, vice president of feature postproduction, "This process actually presents a movie which looks and feels more like a finished film compared to a film workprint, which is often dirty, jumps around on the screen upon every splice, and features temporary opticals and visual effects. I also believe that we can save as much as $200,000 or more on every film that is posted using this format. Having a film negative, however, still provides us with an archival medium that we know will last beyond our lifetimes."

The feature was shot on 35mm film, and the original negative was transferred to the Sony HDCAM HD video format at The Post Group facility in Hollywood. All dailies were viewed in HD on location and at the studio using Electorhome Vistagraphic 2500 projectors. After completion of the director's cut, the HD dailies were onlined, with all opticals, visual effects and titles created in the HD format. An HD master version of the film was used for audience research previews, which were held in regular theaters with a 38' screen size using the Electrohome Roadie projector playing back from the Sony HDCAM video.

Web site: www.mgm.com.

Color-Correct HD

Post Impressions, with offices in Massachusetts, California and England, has released a non-linear HD color-correction system as a result of an OEM agreement with color-management specialist Pandora International. The color-correction application works with Post Impressions' new HD work station. The system will process 10-bit YUV video at 1920 x 1080 24p/30i resolution in real time, and it comes with a one-hour storage capability. The color-correction system will be sold and supported by Post Impressions' worldwide sales and engineering infrastructure. A no-penalty upgrade path will be available to existing users of the company's SpiDDR system.

You can reach Post Impressions Ltd. in California, (310) 287-0210, fax (310) 287-0211. In Mass., (978) 276-1317, fax (978) 276-1316. In England, (44) (0)1635-232600, fax (44) (0)1635-232639. You can also e-mail the company at info@postimpressions.com or visit its Web site: www.postimpressions.com.

Dual-Purpose Telecine

Cintel of the United Kingdom has launched the Rascal, a new HD and standard-definition (SD) telecine system. Based on Cintel's URSA Gold platform, Rascal combines an affordable price with an ability to transfer motion-picture film to either HD or SD video. The superior image quality and maximum cost efficiency will help post-production facilities make the transition to HD easily and profitable.

Rascal's new features include an HD frame store made by Digital Audio Video. It also includes a new color channel, providing primary and six-vector secondaries as well as a new Brimar CRT. It accommodates all conventional motion-picture formats and supports output to all digital video formats, includ-

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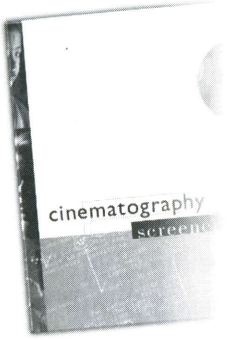

Cinematography Screencraft
by Peter Ettedgui

The 17 directors of photography profiled in this book encompass three generations of filmmaking, representing a wide range of visual styles — from *The African Queen* to *Delicatessen*. Lavishly illustrated with over 500 color pictures, 300 black-and-white photos, and numerous diagrams, this reference features informative accompanying text based on interviews with each cinematographer. This is a perfect book for practicing professionals, students, and movie buffs alike.

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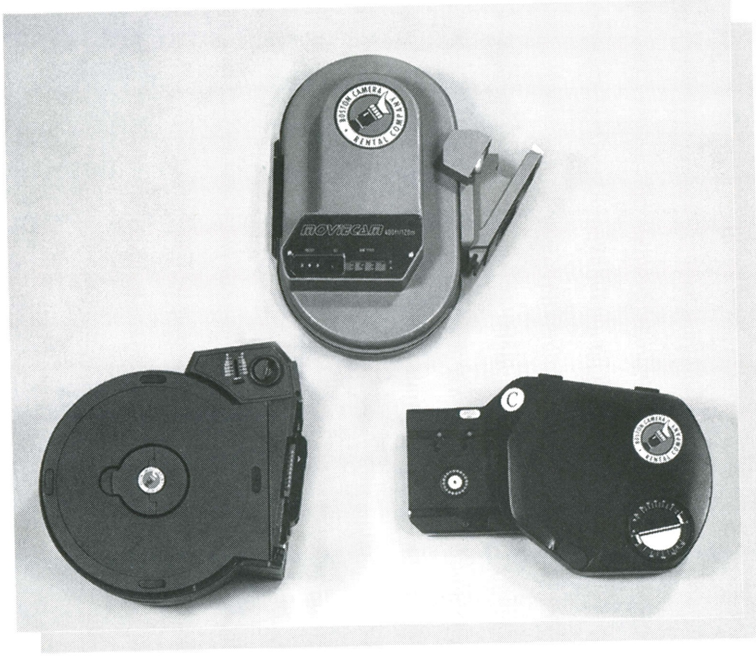

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"When we spoke with facilities," says Cintel president and CEO Donald Edmonson, "they articulated five features [desirable] for a new telecine: picture quality, operational flexibility, creative flexibility, reliability and cost effectiveness. Rascal offers remarkable picture quality across a range of high-definition and standard-definition formats, matched with a superior tool set and the reliability of its URSA heritage."

Cintel International Ltd., (44) 1920-463939. Cintel Inc. (California), (661) 294-2310.

Telecine Advancement from Philips

Philips Digital Video Systems has introduced the new Shadow telecine to replace the Quadra Vision.

Building upon many of the key technologies of the Spirit DataCine, the Shadow incorporates the latest digital and optical technology to achieve significant strides in signal processing. The machine features a high-speed CCD 1332 pixel line array using solid-state technology coupled with a newly designed front processing that employs advanced Correlated Double Sampling technology.

The telecine delivers high, digital-quality, 525- and 625-line and HDTV images, with excellent signal-to-noise performance. The Shadow offers the option of providing spatially interpolated 1920 x 1080 HDTV/DTV and 2K outputs for cost effectiveness. The 2K outputs are derived from 1.3K optical scanning.

Optics are from Carl Zeiss, with an improved light-path technology that originated with the Quadra Vision. A kaleidoscope diffuses the light before illuminating the emulsion for film-scratch suppression.

To locate your nearest Philips Digital Video Systems dealer, visit the Web site: www.broadcast.philips.com.■

Points East

Two Worlds Collide in *Black and White*

by Eric Rudolph

Near left: Brooke Shields, Eddie Kaye Thomas, Kim Matulova and Method Man work through a scene on location in Manhattan. Far left: Boxer and thespian Mike Tyson is flanked by Raekwon and Power.

Photos by Theresa Dillon, courtesy of Screen Gems.

Imagine the scene: prizefighter Mike Tyson stares out a window high above Manhattan, quietly brooding as a party proceeds around him. Enter acclaimed actor Robert Downey, Jr., in character as an effeminate New Yorker. Downey insists on telling the uninterested fighter about a dream he had in which Tyson embraced him. Tyson suddenly explodes and attacks Downey, and Brooke Shields rushes into the scene, digital video camera in hand, screaming for someone to help remove Iron Mike's grasp from Downey's neck.

This bizarre encounter is a highlight of New York-based writer/director James Toback's new film, *Black and White,* which explores the provocative world of white, well-to-do Manhattan teens who have taken their fascination with hip-hop music to an extreme. Shields plays a documentary filmmaker who sets out to chronicle the dangerous collision of these two worlds with a tiny digital video camera, which is permanently planted in front of her face. Downey plays Shields's ever-so-slightly closeted homosexual husband and filmmaking partner.

The film, which also features Ben Stiller, Claudia Schiffer, Bijou Phillips, Allan Houston of the New York Knicks and Method Man of Wu Tang Clan, was shot in four weeks in and around Manhattan in a style that first-time feature cinematographer David Ferrara describes as "semi-documentary, but with flair — lots of camera movement, crane shots and Steadicam. In a half-dozen scenes, the Steadicam operator steps onto or off of a crane, which I think must be a record for a four-week shoot."

Toback is no stranger to provocative cinema. Among his other credits, he wrote and directed *Fingers* and *Two Girls and a Guy* and penned the Academy Award-nominated screenplay for Barry Levinson's *Bugsy.* The director says his documentary-style approach to *Black and White* was "essential to add a sense of truth and reality right in front of your eyes. We actually mixed in real documentary footage; Brooke Shields was really taping with the DV, and she took it quite seriously. We used seven minutes of her footage in the final film. She got great shots when Tyson attacked Downey!"

In addition to being shot in a documentary style, *Black and White* was also, surprisingly, filmed in the 2.35:1 widescreen format. Ferrara recalls, "I had assumed we would shoot in 1.85:1, like most small films. However, one day, James Toback and I were scouting, and he handed me the phone and said, 'It's Paul Thomas Anderson.' One of the things Anderson [the writer/director of *Boogie Nights* and *Magnolia*] said to me was, 'You should shoot this film in 'Scope.' I think he finds widescreen a great way to lend a small film a big look and a bit of grandeur. I did my research and settled on the Super 35 widescreen process. I grew to love composing for the wide frame. Widescreen looks great, and since *Black and White* has a large ensemble cast, the wide frame helped me to get everyone in the picture at one time."

Ferrara, who had established himself as a successful director of photography on commercials and music

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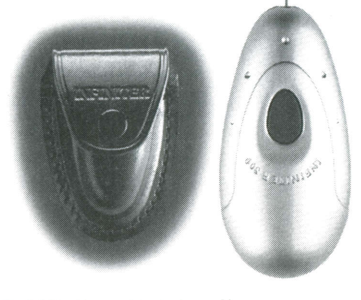

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videos before collaborating with Toback, hopes that the odd combination of a documentary photographic style and the widescreen format "will challenge viewers to think about the idea of what is real and what is not. *Black and White* is about white teens trying to act as if they're black, so this dualistic, real-and-unreal approach seemed appropriate." Toback adds that the combination of styles "seemed to be in the spirit of the film, with its mixing of cultural, philosophical and linguistic extremes."

The biggest challenge Ferrara faced was the film's demanding four-week production schedule. "It's hard enough to make a film in four weeks if you have a tight script and you've rehearsed," he offers. "It's even harder when the film is being written on the set. Most of *Black and White* was improvised, so the script had almost no dialogue." This was even true of the explosive Tyson-Downey scene. "Jim Toback is a confident, fearless filmmaker," Ferrara attests. "He told Mike that Robert would approach him, and that he should respond in whatever way he chose. A lot of cinematographers might be scared of a film that would be mostly improvised, but I loved the idea!"

Ferrara's main approach for lighting interiors quickly was to hang 6K space lights for a soft, overall illumination level that was kept two stops under key. The key lights were mostly theatrical-style Source Four Leko instruments, which Ferrara prizes because their beams can be quickly and easily cut and shaped via their internal mechanisms, without assembling a lot of grip equipment.

The cinematographer also used large lights placed outside the windows of his practical locations. In one case, a 4K HMI on a Condor was aimed through the window blinds of the dark bedroom shared by Houston and Schiffer. The scene's shadowy, patterned look moved the film out of the semi-documentary realm and into film noir territory, something Ferrara accomplished in several pivotal scenes. "For the scene in question, that 4K HMI through the window and blinds was the only light, except for a small bit of bounced fill inside the room," he explains. The HMI was gelled to tungsten temperature with full CTO because Ferrara doesn't care for the ubiquitous "blue nighttime" look, which he thinks is especially inappropriate for Manhattan exteriors.

In another key scene, Tyson calmly but devilishly advises a rap tycoon/gangster on the proper way to deal with a turncoat friend. This daytime scene, set in a gym, was shot near a window at night. Ferrara details, "Once again, day had turned to night, and we still had to get daytime shots. I aimed one 2500-watt light and one 4K HMI [on an 80-foot Condor] through the gym's window for the key. We had all of the lights off and used some Kino Flos for fill. We took every light off the truck and put them several stories below on the sidewalk, aimed at the buildings across the street from the gym. We used a 12K HMI, three or four nine-lights and a bunch of HMI Pars. I don't think you can tell that it's fake daylight."

Most of the film was shot with two cameras per setup, one on Steadicam and the other on a dolly or a crane. The show's A camera was a Panavision Platinum, and the B unit was a Moviecam Compact. Panavision Primo optics were used throughout the film, mainly the 21mm and 27mm primes. Ferrara adds, "We would occasionally use the 10mm, 14.5mm and 17.5mm as well, and for close-ups we went to 40mm. We rarely used anything longer."

Because this was Ferrara's first feature, he sought the expert counsel of Allen Daviau, ASC (*Bugsy, Avalon*), one of his favorite cinematographers. "Allen was tremendous; he took me through his entire philosophy of shooting a film, from reviewing the script to working with the director and postproduction. I would occasionally call him from the set, and he would always take my calls. One time, when I was thanking him for being so generous, he said, 'David, we all love what we do. All I ask is that you pass it on,' meaning that when anyone sought my advice, I should give it just as freely." ■

Books in Review

by Ray Zone

The Motion Picture Image: From Film to Digital
by Steven Barclay
Focal Press
220 pps, softcover (no price given)
ISBN 0-240-80390-6

"Cinematography," states Steven Barclay, "can be viewed as an art, a craft, an applied science or a challenge of technology and logistics. It is very often unclear where one ends and the other begins." In the introduction to his fine book, Barclay characterizes cinematography as a challenge that "is continuous and ever-changing." He compares the director of photography to a "test pilot flying a high-performance aircraft," whose " understanding of the dynamics of flight, the engineering of the aircraft and the inherent limitations of that aircraft" will allow successful completion of the mission at hand.

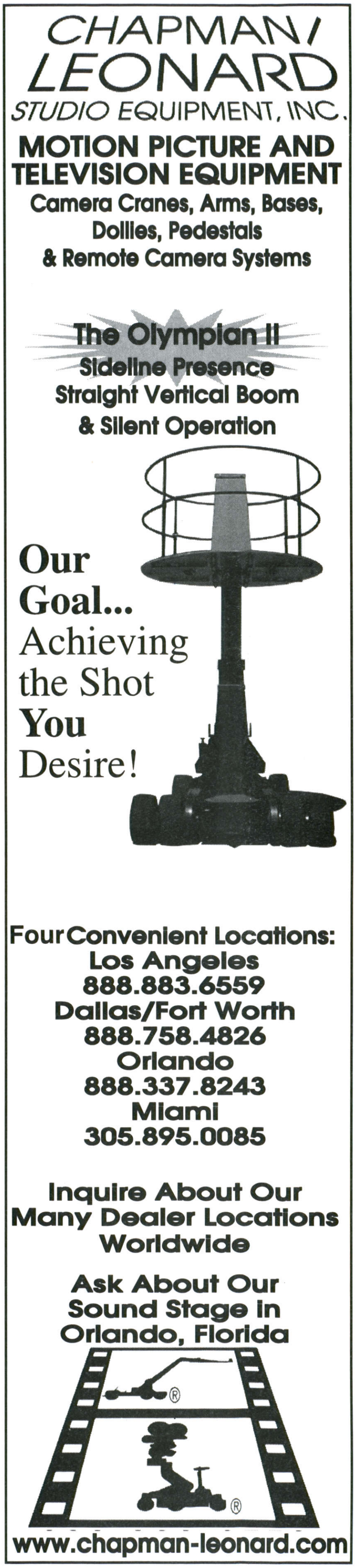
The technology of the moving picture has always been in a state of evolution, and the cinematographer needs to know as much as possible about "the basis, workings and possible future of the images being shot." Traditional film technology is still the yardstick by which all images are judged. This book traces the history of the development of film technology and discusses how it laid the groundwork for the digital and electronic systems of the present and future.

Both students of cinema and practicing cameramen will benefit from this volume, which begins, fittingly enough, with "Human Vision and Cinematography," a chapter comparing the workings of the eye to those of a camera, examining visual perception itself. Subsequent chapters explain lucidly and simply the fundamentals that affect film images, among them light and exposure, color temperature, filters, sensitometry and depth of field. As technical as Barclay's subject matter is, his clear and engaging style makes his complex ideas quite accessible. There are also numerous line drawings to clarify the technical points he makes.

Laboratory practice is examined in a separate chapter that could prove valuable to the director of photography. Barclay makes some excellent recommendations. For example: "Establishing a one-light standard for your own material is probably a good idea in order to obtain consistent results." The author also discusses various options for "flashing" negative or positive film. Another excellent chapter, on film formats, includes line-art drawings, made to size, that illustrate each format.

With the chapter "Understanding Video," Barclay lays down a clear theoretical foundation for understanding the information on digital imaging that follows. The subsequent chapter on transferring film to video deals with quality control and color correction. "As an aid for the transfer, some cinematographers may opt to shoot a gray card at the head of the roll," he notes.

Digital scanners and film recorders are the means by which film and digital imaging are merged. Whereas film is locked in time by its concrete nature, physical dyes and layers, digital images can be modified countless times without any degradation. Once digitized, the film image is modified in the computer and output to film once again via the film recorder, where "one can expect a seamless integration with existing footage if all goes well." The next-to-last chapter explores what happens to film images once they are in the computer, and how "the expanded use of computers to finish productions has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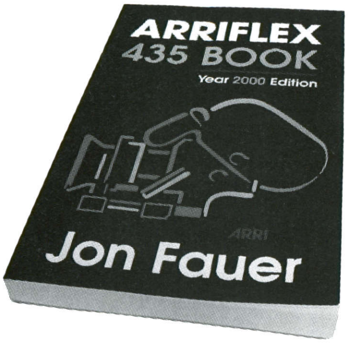

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Barclay closes with a short chapter, "Digital Cinema," in which he discusses both the Hughes-JVC image light amplifier (ILA) projector and the Texas Instruments digital light processing (DLP) system, which employs a digital micromirror device (DMD).

Setting Up Your Shots

by Jeremy Vineyard
Michael Wiese Productions
142 pps., paperbound, $19.95
ISBN 0-941188-74-4

When a film is well made, the viewer becomes enmeshed in the storytelling and less conscious of the artistic devices, such as camera moves and angles, that actually produce the narrative momentum. But Jeremy Vineyard's book makes us supremely aware of just how that narrative "spell" is created. *Setting Up Your Shots* is a primer on cinematography, a book so fundamental in its approach, so pictorial and explanatory, that every film student and film buff — not to mention cinematographers and directors, for whom it will constitute a visual glossary of cinematic possibilities — will benefit by reading it.

Every page of this book details a fundamental motion, visual motif or technique of cinematography (such as shadows, focus transition and split focus) accompanied with illustrations by artist Jose Cruz that clearly demonstrate the technique discussed. This short but invaluable book is divided into eight chapters: "Basic Cinematic Techniques," "Composition Techniques," "Crane Techniques," "Techniques of Movement," "Techniques of Perspective," "Camera Techniques," "Editing Techniques" and "Miscellaneous Techniques." The book is one the clearest enumerations of the vocabulary of cinema yet published. At the bottom of each page, under the heading "Where Can I See It?", a specific scene from a movie demonstrating the technique under discussion is cited, so the reader can check it out himself.

Vineyard is just 21 years old, and he spent three years — 1/7 of his life — researching this book. The result is well worth the effort. *Setting Up Your Shots* will make the casual reader more cinematically literate, and should to be a useful reference for those who already are.

IFP/West Independent Filmmaker's Manual

by Nicole Shay LaLoggia
& Eden H. Wurmfeld
Focal Press and IFP/West
291 pps., paper (no price given)
ISBN 0-240-80389-2

This nuts-and-bolts manual of filmmaking will prove invaluable to the novice producer or documentary-maker. Authors LaLoggia and Wurmfeld produced the independent feature hit *Swingers*, and the information they present is up to date and concisely organized. Ten succinct chapters take the reader through the production process in detail, from script and financing, breakdown and scheduling, to budgeting, preproduction, production and postproduction.

The authors use *Swingers* as a template, and their book shows all of that film's preproduction paperwork, including contracts, disclaimers, breakdown sheets and shooting schedules. A CD-ROM is also included. In addition to production checklists, forms, memos, reports and worksheets, the disc includes interviews with filmmakers Kasi Lemmons, Billy Bob Thornton, Kevin Smith, Ang Lee and Jon Favreau, among others.

When LaLoggia and Wurmfeld were approached by IFP/WEST to write about producing an independent film, they "set out to create the manual that we would have liked to have had early on." The step-by-step structure of this book makes it a great, practical tool; also included is a valuable resource guide listing addresses and phone numbers of support organizations, guilds, U.S. distributors and film festivals. ■

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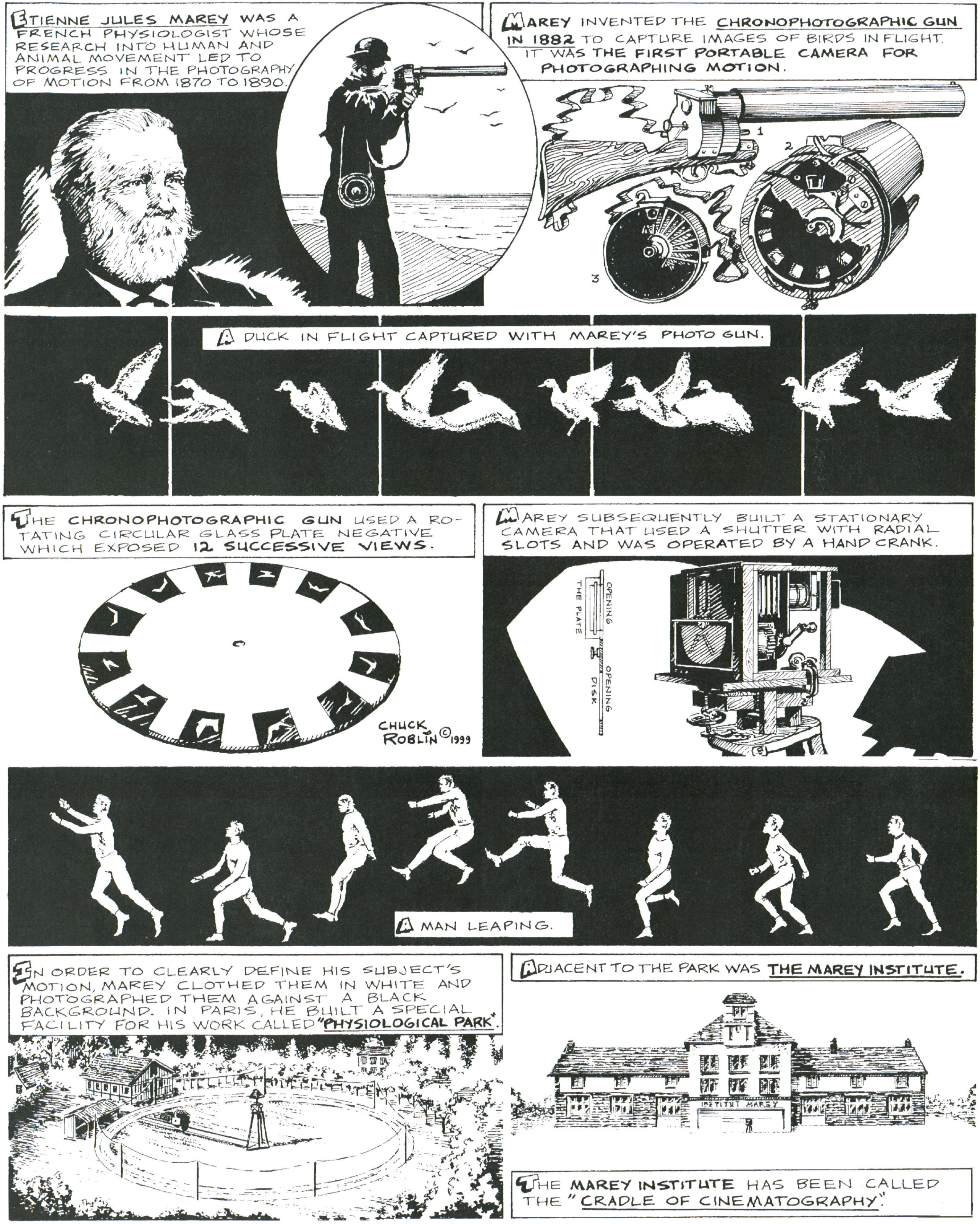
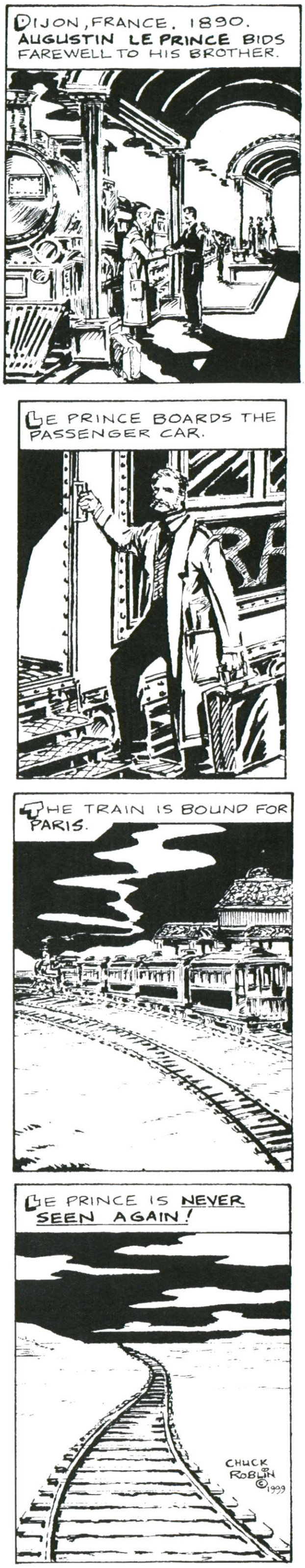
The Chronophotograph

by Ray Zone & Chuck Roblin


ETIENNE JULES MAREY WAS A FRENCH PHYSIOLOGIST WHOSE RESEARCH INTO HUMAN AND ANIMAL MOVEMENT LED TO PROGRESS IN THE PHOTOGRAPHY OF MOTION FROM 1870 TO 1890.
MAREY INVENTED THE CHRONOPHOTOGRAPHIC GUN IN 1882 TO CAPTURE IMAGES OF BIRDS IN FLIGHT. IT WAS THE FIRST PORTABLE CAMERA FOR PHOTOGRAPHING MOTION.
1
2
3
A DUCK IN FLIGHT CAPTURED WITH MAREY'S PHOTO GUN.
THE CHRONOPHOTOGRAPHIC GUN USED A ROTATING CIRCULAR GLASS PLATE NEGATIVE WHICH EXPOSED 12 SUCCESSIVE VIEWS.
CHUCK ROBLIN ©1999
MAREY SUBSEQUENTLY BUILT A STATIONARY CAMERA THAT USED A SHUTTER WITH RADIAL SLOTS AND WAS OPERATED BY A HAND CRANK.
THE PLATE
OPENING
OPENING
DISK
A MAN LEAPING.
IN ORDER TO CLEARLY DEFINE HIS SUBJECT'S MOTION, MAREY CLOTHED THEM IN WHITE AND PHOTOGRAPHED THEM AGAINST A BLACK BACKGROUND. IN PARIS, HE BUILT A SPECIAL FACILITY FOR HIS WORK CALLED "PHYSIOLOGICAL PARK".
ADJACENT TO THE PARK WAS THE MAREY INSTITUTE.
INSTITUT MAREY
THE MAREY INSTITUTE HAS BEEN CALLED THE "CRADLE OF CINEMATOGRAPHY".

Next Month


DIJON, FRANCE. 1890. AUGUSTIN LE PRINCE BIDS FAREWELL TO HIS BROTHER.
LE PRINCE BOARDS THE PASSENGER CAR.
THE TRAIN IS BOUND FOR PARIS.
LE PRINCE IS NEVER SEEN AGAIN!
CHUCK ROBLIN ©1999

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by
Ray Zone
&
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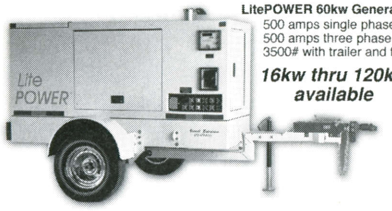

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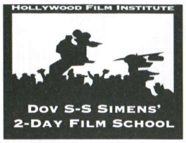
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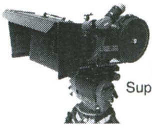

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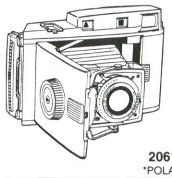

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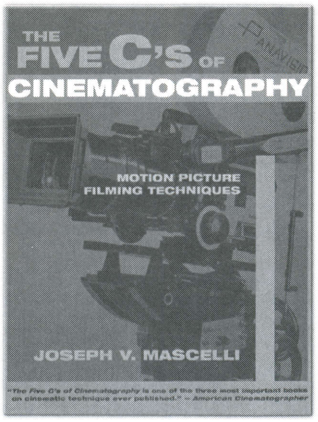
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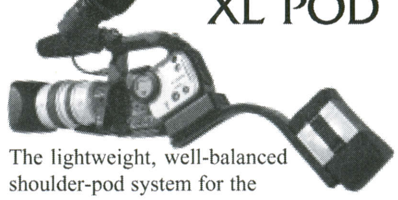

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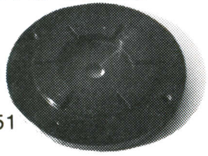

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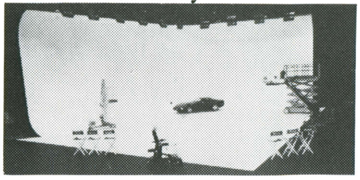

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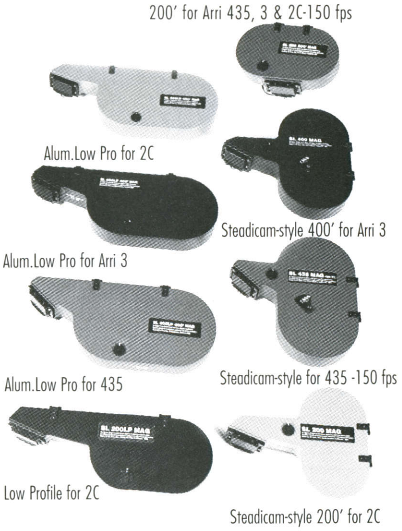

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Lighting *Dances With Wolves* With Dean Semler, ASC, ACS
Program includes Semler discussing and demonstrating:
- Widescreen composition.
- The relationship between lighting design and coverage.
- The best use of high-speed film stocks in low-light situations.

F785 29 min. Producer: AFTRS

Lighting *Dead Poets Society* With John Seale, ASC, ACS
- Seale guides the students and our camera through the lighting setups he used for scenes set in summer, winter, night and day.
- He also divulges tricks and techniques that he uses to achieve extremely difficult effects while maximizing the number of takes each day.

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Studio Lighting: A Comparative Workshop With Donald McAlpine, ASC, ACS & Denis Lenoir, AFC
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Location Lighting With Geoff Burton
Topics include:
- Maximum use of natural lighting resources.
- Working with limited space on location.
- How fast stocks and fast work can be critical to success.

F788 29 min. Producer: AFTRS

Shooting for Realism With Allen Daviau, ASC & Sacha Vierny
Program highlights:
- Daviau and Vierny were each given the same script and set to work with, and they share their individual approaches to the problem.
- Computer graphics of the lighting setups as well, as side-by-side comparisons of the finished scenes, illustrate their approaches.

F802 55 min. Producer: AFTRS

Shooting for Drama With Robby Müller, NSC, BVK & Peter James, ASC, ACS, CSC
Program highlights:
- Each cinematographer was given the same script and set constraints. The results were beautiful images that reflect their different backgrounds and philosophies on the art and business of filmmaking.
- The video culminates with a split-screen comparison of each cinematographers finished piece.

F803 55 min. Producer: AFTRS

Shooting for Fantasy With Sacha Vierny & Denis Lenoir
Program highlights:
- Lenoir demonstrates how to use one special effect to hide another.
- Learn how to combine several effects to create magic.

F804 55 min. Producer: AFTRS

Shooting for Black-and-White With Allen Daviau & Denis Lenoir
Program highlights:
- As well as being a storehouse of practical information, this program is an ode to the haunting beauty of black-and-white cinematography and a wonderful essay on the changing art of the cinematographer from the 1920s to the present day.

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From the Clubhouse

ASC Officers Elected

Victor J. Kemper was re-elected president of the Society on January 24. The move ushers in Kemper's second consecutive one-year term, and marks the fourth time that members have elected him to lead the ASC.

"The ASC has a historic obligation to the public, and to past and future members, to inspire, recognize and advocate artful filmmaking," says Kemper. "In that context, we are dedicated to advancing the role of the cinematographer as a primary collaborator in the production of narrative stories."

Other officers elected were Dean Cundey, first vice president; Steven B. Poster, second vice president; Russell Carpenter, third vice president; John Hora, secretary; Robert Primes, treasurer; and Laszlo Kovacs, sergeant-at-arms. In addition to the aforementioned members, the Society's 2000 Board of Governors also includes John Bailey, Stephen H. Burum, Allen Daviau, George Spiro Dibie, William A. Fraker, Woody Omens, John Toll, Haskell Wexler and Vilmos Zsigmond. The new alternate delegates are John A. Alonzo, Roger Deakins, Gerald Perry Finnerman and Robert F. Liu.

The Prez Goes Online

Kemper sat down for a cyber-interview in the ASC Clubhouse library on January 25 for an Internet Webcast program pilot called *Media Technology.com*, which will be used in conjunction with a text-based Web site of the same name published by Creative Planet.

A Canon XL-1 Mini DVCam captured Jeff Kaufman's questions to Kemper about the progression of digital technology and its effects on cinematography and its practitioners. "I think cinematography is on the verge of a very exciting, new set of rules and tools which will ease the making our images," Kemper said. "I see that motion picture film, at least negative, is still — and probably will be for a while — the only means of capturing a high-quality, high-resolution image."

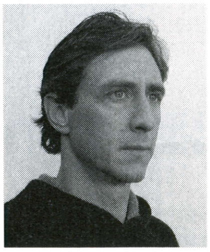
Kemper also feels that although the digital revolution is well on its way, it will not sweep everything aside and take over the entire industry, because there are still too many distribution and technical problems that need to be solved. "The technology is here," he says. "It just isn't refined enough to make theatrical distribution as good as we would like to see it. If you want to see what the director and the cinematographer have created in all its glory, then by gosh, you're going to have to watch it on film."

Kemper notes that as the film process shifts more to the digital side, with digital intermediates, dailies and restorations becoming popular, cinematographers must play a role in developing the technologies, and stay abreast of new digital tools. Regarding moviegoers' visual preferences, he offers, "I think it's terribly unfortunate that most viewers just don't know [the difference between film and digital images]. It isn't that they don't care; they are used to seeing substandard pictures in most theaters." He asserts that it's up to cinematographers and film manufacturers to visually educate the public and the film community while striving for improved exhibition.

Finnerman Increases Trust Fund

Society member and Board alternate Gerald Perry Finnerman announced that he has increased his contribution to the Motion Picture and Television Trust Fund from $300,000 to $415,000. Finnerman has dedicated the donation, as well as a room at the Motion Picture and Television Fund Hospital, to the ASC. The mission of the MPTV Foundation is to develop philanthropic resources that are financial, leadership-based, volunteer and tangible in nature to support the hospital, which provides housing and services to film professionals with medical needs.

Collister Inducted



Peter Collister has become the Society's newest member. Collister, who grew up in Cleveland, Ohio, studied film at the University of Southern California. He began his career by photographing second-unit work for a number of Randal Kleiser's films, including *The Blue Lagoon*, *Flight of the Navigator* and *Grandview, U.S.A.*, as well as for Stanley Donen's comedy *Blame It on Rio.*

Collister made the transition to first-unit director of photography on fellow Clevelander Dwight Little's *KGB: The Secret War*. He shot several commercials and music videos for director Michael Bay, and their relationship carried over into Collister's second-unit photography on the high-octane action films *Bad Boys* and *The Rock*.

In addition to numerous commercials and videos, Collister has racked up extensive feature-film credits as a director of photography. He has filmed the comedies *Can't Buy Me Love*, *Problem Child*, *Dunston Checks In* and *Beautician and the Beast*, and teamed up with director John Singleton on *Poetic Justice* and *Higher Learning*. For the 1998 release *The Replacement Killers*, he used slow motion and a fluid, high-energy camera style to lend the film's action sequences a balletic quality. His most recent project, the comedy *Deuce Bigalow: Male Gigolo*, was a box-office hit. ■

WRAP SHOT

Above: Trelkowski trashes his apartment in a moment of psychic turmoil. Right: The building's concierge (Shelley Winters) points out the spot where the last tenant landed.

Directing *and* acting in a film can test a man's sanity, as Roman Polanski demonstrates in the above still from his morbidly fascinating 1976 horror film *The Tenant.* Deeply disturbing but laced with amusing examples of the filmmaker's pitch-black humor, the picture centers on a meek Polish bank clerk named Trelkowski (played by Polanski himself), who's desperate to find an apartment in overcrowded Paris. The ineffectual clerk finally locates a dingy yet suitable space, but he must live with the gruesome news that its previous occupant, a young woman, attempted suicide by hurling herself headlong from the balcony.

As the narrative progresses, Trelkowski is tormented by both his weird, creepy neighbors and his increasing obsession with the suicidal woman, who is still languishing in a local hospital. Driven to pay a visit, Trelkowski finds her virtually mummified in a swath of bandages that reveal only a hostile, glaring eye and a mouth filled with broken teeth. In a bloodcurdling moment that recalls a famous frame from Sergei Eisenstein's silent classic *Potemkin,* the hideous, bedridden apparition unleashes a horrifying howl of existential agony as the camera plunges into her gaping maw, which takes on the aspect of a dark and bottomless pit. Shaken by this encounter, Trelkowski soon finds himself spiraling into schizophrenia and madness.

Critically drubbed upon its release, *The Tenant* (which was adapted from Roland Topol's novel by Polanski and longtime writing partner Gérard Brach) has since amassed a devoted following among film buffs. In his autobiography, *Roman,* Polanski called the picture "a flawed but interesting experiment, admired by some students of the cinema and regarded by others as a cult film." Indeed, the chilling tale is filled with trademarks of the Polanski *oeuvre:* bizarre characters and situations, sly compositions fraught with menacing subtext, and unnervingly intimate glimpses of the main character's psychosis (including a scene in which Trelkowski, after finding one of the woman's dresses in a shabby armoire, appears in full drag).

The film's relentlessly paranoid tone is enhanced by the expert work of cinematographer Sven Nykvist, ASC, whose voyeuristic camerawork and eerie lighting scheme lend the film an effectively nightmarish ambience. The great Swedish cameraman took full advantage of the film's elaborate apartment-house set — a $500,000 construction job realized by veteran production designer Pierre Guffroy, who had worked on many of Luis Buñuel's French films. Polanski, always an enthusiastic practitioner of cinematic legerdemain, recalled, "Because we could build only two stories — the stage at Épinay Studios wouldn't have accommodated any more — we had to double the height of the facade with the aid of a huge mirror laid flat on the ground at its foot."

The inventive filmmakers also employed an ingenious new tool, the remote-controlled Louma crane, to achieve the picture's impressive opening shot, which explores the outside of the apartment building before entering a doorway to reveal the interior. Thrilled with the results, Polanski described this sequence as "one of the most intricate and satisfying shots I have ever attempted." — Stephen Pizzello

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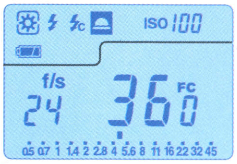
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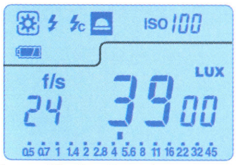
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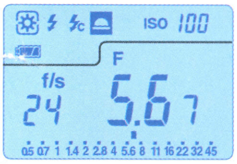
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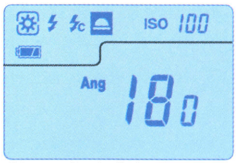
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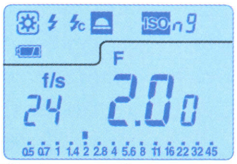
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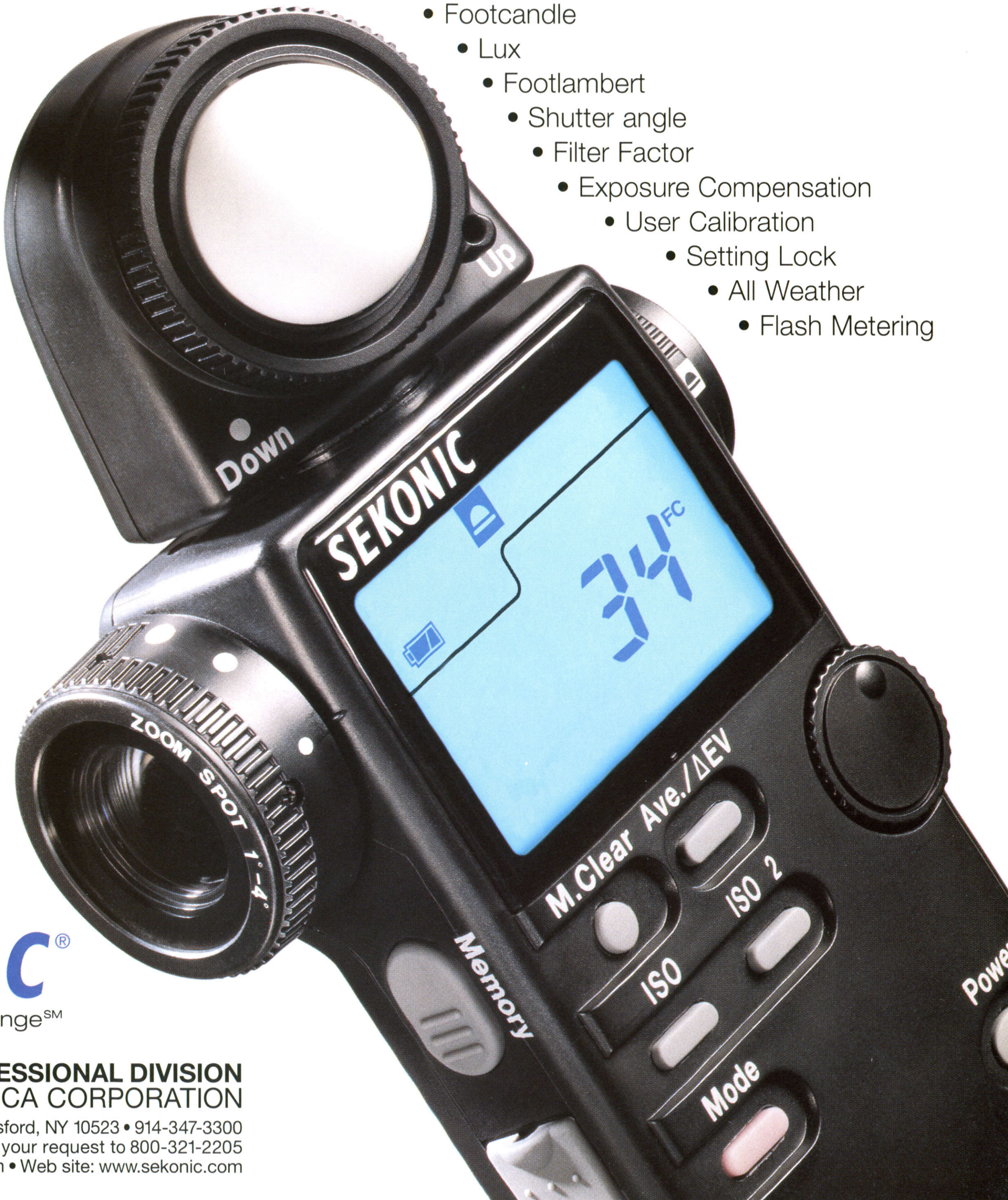
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